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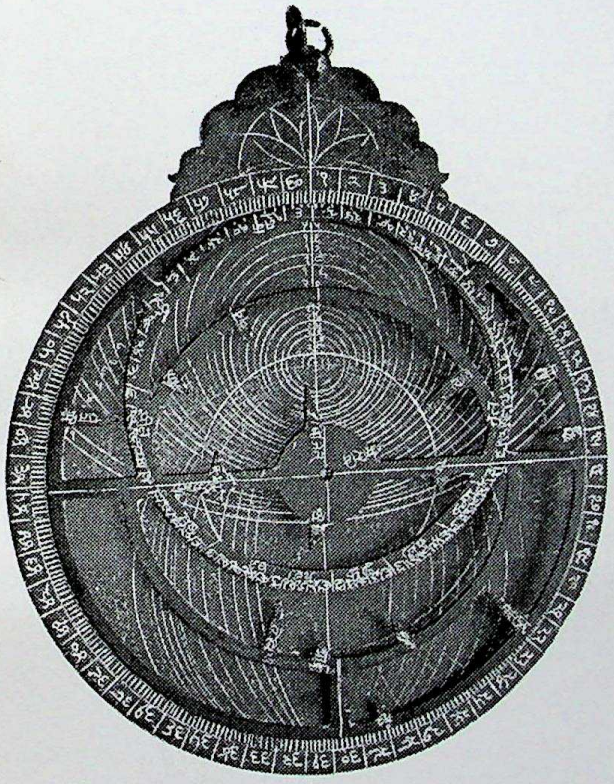

Yantrarāja
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[Refer S.R. Sarma's Monograph, p.38]

ORIENTAL INSTITUTE
VADODARA

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
सत्यं शिवं सुन्दरम्

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ORIENTAL INSTITUTE

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THE VEDIC DIALOGUE-HYMN OF PURŪRAVAS AND URVAŚĪ

EGBERT RICHTER-USHANAS*

The story of Purūravas and Urvaśī that was incorporated in the form of a dialogue in *Ṛgveda* X.95 is one of most frequently used plots in world-literature. In India, it has given rise to a drama of Kālidāsa, in the Western world to numerous swan-maiden novels. From the philosophic and historical point of view, it deals with the relation of an urban civilization, that of the Indus Valley, and a tribal society that of the Vedic Āryans. In this paper, we shall deal with the social clash resulting from this relation and the psychological problems connected with love and separation of man and woman lasting till today.

The hymn has often been analysed and commented upon. We shall study it here again with reference to several Indus seals, which I have found in relation to it.

(For further information about the Indus script and the *Ṛgveda* cf. Egbert Richter-Ushanas, the Message of the Indus Seals and Tablets, Worpswede [2]2007).

The story of *Ṛgveda* X.95 is found in chapter XI.5.1-17 of the *Śatapathabrāhmaṇa* that mentions 15 verses, of which it quotes 1, 2, 15 and 16. The narrative version must be of equal age as the hymn, since it is difficult, if not impossible, to understand the hymn without the *Brāhmaṇa*. According to the *Brāhmaṇa*, the hymn was composed to teach men- the use of the fire-sticks, but their invention is much older. The Vedic purpose is to warn men against the water-women, the Apsarasas, who are free to choose and to leave a man, but it is also hinted at that there is a higher aim in their love as it is the case with the Dawn who is a

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faithful wife and prostitute simultaneously. Through this trait the hymn is related to the Mesopotamian religion, which was discussed already by D.D. Kosambi.[1]

1 (P.) O woman, have understanding, stay, cruel one!
Let us exchange words with each other!
If these things remain unsaid,
they will not cause us joy at any future day.

2 (U.) Why shall I exchange words with you ?
I have gone like the first of the Dawns.
Purūravas, go back home!
I am as difficult to catch as the wind.

3 (P.) Like a lucky shot of the arrow, the missile from the quiver,
like a racehorse winning cows, hundreds of (prices);
as they have let flash it up by an unmanly design,
as the Gandharvas have made a lamb roar.

4 (U.) She gave wealth and youth to the father-in-law;
whenever the lover wished it, she came from the inner house
to the house, where she found joy,
day and night pierced by the rod.

5 (U.) Thrice a day you have pierced me with the rod,
even when I did not desire it, you filled me;
Purūravas, I surrendered to your will,
you, hero, were the king of my body.

6 (P.) The glowing one, she with the line of beauty, the graceful,
she with eyes like a lotus-pond, she who wears a hair-knot,
they melted away like rosy paint,
like cows full with milk they mooed for satisfaction.

7 (U.) The heavenly women will sit near his side, when he is born,
the rivers that purify themselves will let him grow,
as the gods have given strength to you, Purūravas,
for the great struggle of the annihiliation of the Dasyus.

8 (P.) When I, the mortal, approached the immortals,
after they had stripped off their (feather-)dress,
they ran away from me like trembling snakes,
like young mares fearing to be yoked to the car.

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1 *Myth and Reality*, Bombay 1992, p.42-81

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9 (U.) When a mortal, who wants to touch the immortals,
unites with the big-bosomed according to their will,
we polish ourselves like ducks,
like playing mares we bite.

10 (P.) She who flashed up (and disappeared) like lightning,
the water-woman, who presented her lovely things to me,
has brought forth from the waters a manly, well-born (son),
Urvaśī may have a long life (on earth)!

11 (U.) You have been born to rule, really,
but you gave me your virile strength;
I, the knowing one, advised you this very day,
but you did not listen - why do you speak now to me in vain ?

12 (P.) Will the newborn son when seeking the father
not shed tears like a cakra[vāka-bird] hearing this ?
Who can separate husband and wife having one mind,
as long as the fire burns with the parents-in-law ?

13 (U.) I will tell him, that he sheds tears
like a cakra [vāka-bird] crying for loving care;
I shall send you what is with us belonging to you,
go back home, you won't get me, you fool!

14 (P.) And when your lover runs away now
to the farthest distance, never to come back,
when he falls in the womb of the goddess of Death,
when the wild wolves eat him up ?

15 (U.) Purūravas, you won't run away, you won't die,
the cruel wolves won't eat you up!
Really, women can never be friends,
they have the hearts of wolves living in the house.

16 (U.) When in another form I stayed
four years among the mortals,
I ate a drop of melted butter once a day,
and I am still satiated with that.

17 (P.) She, who flies in the air, she, who goes along the sky,
Urvaśī I adore, the best (of her lovers);
so that you may obtain the reward of the good deed,
return! My heart is burning up!

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18 (U.) Thus the gods speak to you, son of Iḷā:
Being as it is, you are a companion of death,
your offspring shall offer soma to the gods
and you shall enjoy heaven.

We learn from the *Śatapathabrāhmaṇa* that Urvaśī consented to live together with Purūravas on three conditions: Three times a day he shall beat her with a rod; he shall not unite with her against her will; he shall not appear naked before her. Moreover, she asks him to protect the two lambs she has brought with her. After Urvaśī has become pregnant by Purūravas, the Gandharvas want her back. They rob the two lambs fastened to Urvaśī's bedstall, whereupon Urvaśī says twice: *As if I had no man, no hero, they rob my son.*

The *Brāhmaṇa* goes on: When Purūravas got up naked to bring the lambs back, the Gandharvas sent a lightning, Urvaśī saw him naked and disappeared on the spot. After a long search he met her and four of her companions bathing as swan-maidens in a lotus-lake. They decided to appear before him in their human form. Then he accosted her with the verses of the Vedic hymn.

Purūravas uses the form of poetry, because this is the language of love, because he believes that he can impress Urvaśī more in this way and because Urvaśī is a poetess herself.

We shall now study the crucial verses of this hymn in detail:

1: The first words of the hymn o *woman, have understanding, stay, cruel one,* show that Purūravas looks upon Urvaśī as a sensible woman who should follow the laws of society and not cruelly forsake him. But Urvaśī explains her cruelty as her nature being like the wind. The human mind is compared to the wind because of its unsteadiness in *Gītā* 6.34. Urvaśī uses this simile from another reason, however. She wants to communicate that she is free from the fetters of society like the *muni* or *jīvanamukta* who live together with the Apsaras and Gandharvas and can even fly according to *Ṛgveda* X.136.4. But then the question arises, why Urvaśī has fallen in love with a mortal.

According to ṚV X.136.7, the *Soma* which the Apsaras prepare for their friend, the long-haired *muni*, is churned by the wind and by a witch who is identical to the prostitutes. Urvaśī's wind-like nature is realized by Purūravas only in verse 17. He wants to have a woman who is ever at his disposal. As a king, this should not be a problem for him. But he has fallen in love with an Apsaras. In relation to her, he is a mortal like other men. Nevertheless, he is held responsible for his love and called a fool in verse 13, because he is not able to bear up with separation. But as a goddess, Urvaśī should not indulge in a love-affair with a fool, by degrading him she degrades herself. If she wanted to bring him on a higher level of existence, then this was a failure, for which she is responsible, the more so as Purūravas did not break

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her conditions voluntarily. Urvaśī's behaviour appears whimsical and therefore she is criticised like the Akkadian goddess Ištar in the 6th tablet of the *Gilgameš* epic.

3: Purūravas continues with Urvaśī's similes, but he turns them into images of inseparability thus forging them into a magic spell to bring her back. In the *Gāndharva* marriage, sexuality gets a sacred character similar to the friction of the fire-sticks and the pressing of Soma, the separation of the sexes is then only temporarily. From the modern point of view this would be a challenge to personal freedom and hence faith is not expected of anybody, even less of a modern woman.

Purūravas knows that the Apsaras are not totally free, they have a lord in the other world. Urvaśī belongs to the king of the Gandharvas or to Indra or to the gods Mitra and Varuṇa. Like a horse or the dice, Urvaśī has incited Purūravas' male nature on the request of her companions, like a race-horse or the dice she has brought him luck at first, but after she has left him, he feels as if he has lived in vain. His sexual energy that is identical with his life-force, has gone with her, bereft of it, he must die.

The Gandharvas are the musicians of the gods in later times. Here they are called the *blowing ones,* which means that they are able to produce magic sounds. According to the *Brāhmaṇa,* they also have the knowledge of making fire by friction and by bellows. Instead of the lambs of the *Brāhmaṇa,* we find *urā,* sheep, in the Vedic verse. It is female by gender, though it means always lamb in the Veda. The Vedic sheep (*avika*) is similar to the unicorn. It is said in tales being told all over the world that this animal is tamed by a beautiful virgin, after it has put its horn in her lap. This is referred to in ṚV X.40.11, where the virgin Ghoṣā asks the Aśvins to give her a young man who like a bull, puts his head in her lap. The unicorn is a bull, too. Urvaśī meets Purūravas in the form of a shepherdess and therefore she brings two lambs with her in the bedroom, which is a sacred place for her like the stable in Akkadian myths relating to the sacred marriage.

The words Urvaśī says, according to the *Brāhmaṇa* after the lambs were robbed, are part of the *unmanly design* of the Gandharvas. To make use of such a design is quite natural for them. The Gandharvas are said to be partly human, partly animal. On account of their superhuman nature Purūravas is not able to catch them, after they have robbed the lambs. But inspite of her divine nature, Purūravas is not willing to let Urvaśī go. In a way, he is the prototype of the modern stalker, like him, he is threatened by madness and death. He does not insult the woman, however, as modern stalkers usually do.

That Urvaśī saw Purūravas naked, because of the lightning the Gandharvas let flash up, is not stated in the hymn, but it is surely an original trait of the story. Manu treats nakedness as something immoral. In IV.53,75 he prescribes that a man should not see his wife naked and that he should not sleep naked himself, but in the Veda, the nakedness of the

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Dawn, is referred to in various hymns. Likewise, it is said of Urvaśī's companions in X.95.8 that they have stripped off their dress. Purūravas is not allowed to appear naked, because as a mortal, he is inferior to Urvaśī. She wants him to feel ashamed and to make him thus, takes over the responsibility for their 'good deed' (v.17).

4: This verse retains the ancient trait of Urvaśī's relationship to her father-in-law, i.e. to Budha, the planet Mercury, according to the *Harivaṁśa*. She treats him almost like a lover and that is why he regains his youth and potency. In behaving like this, she obeys the social rules of the time, without deviating from her higher nature. Likewise, it is said of the Dawn that she follows the law, though she is beyond it. According to the later versions of the story, Urvaśī lived with Purūravas alone in the woods, not in his house in the town, without having married him. *Inner house, antigṛha,* demonstrates that there were separate houses for women in the Vedic society already.

5: The rod is the *vetasa* that is used according to ṚV IV.58.5 for churning butter. It is a drop of butter, on which Urvaśī lives according to verse 16. To be beaten by the *vetasa* is part of the ceremony of churning butter, hence she has not regarded it as an act of violence against her as long as Purūravas was the *king of her body*. She even may have regarded it a form of erotic titilation to be treated in this way. But he should not have beaten her against her will. Even if the Gandharvas had not brought her back by a ruse, Purūravas would have no right to expect her to live together with him any longer, because he did not keep this condition.

6: The number of the Apsaras corresponds to the five subtle *cakras* on the spinal cord pierced by the *Kuṇḍalinī* on her way to the seventh *cakra* at the skull. The last and the first *cakra* would then belong to Urvaśī herself. Purūravas wants to say here that these ladies were not prude at all, but behaved like 'painted women', i.e. like prostitutes. They even obtruded themselves upon him like a cow that wants to be milked.

7: A cruel deed as the *annihilation of the Dasyus* cannot have been requested by an Apsaras. The great struggle in life is not to annihilate the *Dasyus,* but the ego, as it is the purpose of Yoga. This struggle should be fought by man and women together as Agastya says in ṚV I.179.3. The moral standards of the Indus civilization were higher than those of the later Āryans, who presecuted the *Dasyus* by identifying them with demons only to deprive them of their cattle. The author of this verse tries to direct Purūravas' energy away from Urvaśī to the *Dasyus*. This is not in agreement with the inscription of the seal that belongs to this verse, as we shall see later on. If Purūravas would have been able to do such a cruel deed, he could not have been Urvaśī's best lover (v.17), nor would the Gandharvas request such atrocities. That the rivers are mentioned here is caused by the name of the Apsaras meaning 'flowing like water', but they are not river-goddesses, as this verse seems to imply.

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8: This verse shows that the Apsaras have opposite qualities. On the one hand, they behave like 'painted women' or prostitutes, on the other, like innocent virgins. At first they attract the hearts of a man, but when he wants to unite with them, they disappear, because they fear to lose their freedom. This is a cruel behaviour, only from the male point of view.

The equivalence for *bhujyu,* bent, is correctly stated in *Grassmann's Vedic dictionary* as a snake. The Apsaras have the double character of this animal, fearful and poisonous or liana-like. That does not mean that they have no carnal desires. To fecundate her thrice a day is one of Urvaśī's conditions, though she declares in verse 16 that she lived on *a drop of butter* only. The normal word for 'snake' is avoided by Purūravas, because he does not want to compare Urvaśī openly with a hierodule. Instead he prefers the comparison with the proud horse. Both similes are contained in the cup-sign of the inscription related to this verse, as we shall see later.

9: In this verse, Urvaśī confirms Purūravas' description in a way, but she adds that a mortal can have intercourse with women liike her only according to their will (*kratu*), their conditions. The man they choose must be a suitable victim by his position in the society, he must be strong or rich or spiritually advanced. In other words, he must be a worthy man.

Women with a big bosom (*kṣoṇi,* literally heaving) are also found on later Indian paintings and sculptures. Generally, the swan is the bird of the Apsaras, but the duck is also found on an Indus seal related to this verse. Urvaśī's words are not contrary to what she has said in verse 5, according to which Purūravas was the *king of her body,* as if she was a mortal, for even if the Apsaras accept the sovereignty of a man, they do this on their own free will. Purūravas does not realize this, because he has lost his mind through Urvaśī's beauty. The horse is used by Urvaśī for comparison, too, but she turns Purūravas' words into another direction. In her opinion, the horse is a simile for freedom. She thinks of a wild horse, not of a racehorse (v.3), which comes back to the owner after the race.

10: The *lightning* was mentioned in verse 3 already. Here it is used to describe Urvaśī's nature. That means that the Gandharvas were acting in agreement with it. Purūravas refers to Urvaśī's pregnancy, which he takes for certain, because the water-women generally forsake their husband or lover after having become pregnant. He thinks that he can bring her back by appealing to her motherly feelings, but this is no argument for an Apsaras. Because she is pregnant, he wishes her a long life, though she shortens his. The waters can be related to the Great Bath of Mohenjo Dharo. It was probably there, where Purūravas met Urvaśī and the other Apsaras. His son will be born at such a holy place with its cabins that look like a stable. Similarly, Vaśiṣṭha and Agastya were born in a *puṣkara,* a lotus-pot or lotus-pond.

11: Urvaśī reminds Purūravas that she has warned him against the nature of the Apsaras. He could escape the bad consequences of cohabitation with her only by behaving like a long-

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haired *muni* who always lives in the company of the Apsaras and Gandharvas i.e. by retaining his male energy, when uniting with a woman. This is called *ūrdhvaretas* later, drawing the seed upwards, keep it within. Through *ūrdhvaretas,* he would have become king of his own body and he would not have suffered from separation. But Purūravas, wanting to be king of her body, did not listen to her, that means he did not restrain himself.

12: I read *cakra,* wheel, here as *synonym of cakravāka* on account of the Indus seal related to this verse.[2] The *cakravāka* bird cries like a wheel for his beloved, and like a wheel the tears of the forsaken child will run after it is born. A rather artful simile, through which Urvaśī as the goddess of language shall be convinced eventually, that she has not got the right to forsake Purūravas.

13: In the *Viṣṇupurāṇa,* Śiva's name Rudra is derived from the root *rud,* to weep, because Rudra wept, when nobody took care of him after his birth. *Loving care* can also mean *care of Śiva* which is corroborated by the related Indus seal too. Purūravas is called a fool, because he does not realize the transitoriness of carnal love, but if he would have left Urvaśī, she would have accused him for his cruelty.

14: Death is merely the other aspect of the Dawn, who is said to shorten the life of the seers, whenever she appears anew (cf. ṚV I.124.10). But it is possible to overcome death by Yoga. Urvaśī must go like the Dawn, but that does not mean that she wants to kill Purūravas as Kosambi supposes.[3]

15: Urvaśī compares women like herself to animals called *śālāvṛkā* to make it easier for Purūravas to forget her. This animal is mentioned only once again in the *Ṛgveda,* but there in its male form. O'Flaherty explains it after Monier-Williams as a jackal, which is a *symbol for an unfaithful woman in later Indian literature,*[4] but literally a *śālāvṛkā* is a she-wolf or a bitch (*vṛkā*) that lives in the house (*śālā,* related to German *Saal*). A wolf that lives in the house appears as a faithful dog, but really it is unfaithful and shameless like a stray dog.

The Greek word *hyena,* which is the equivalence given in *Grassmann's Dictionary* for *śālāvṛkā,* is the female form of *hys,* (wild) pig. The *hyena* belongs to the family of the dogs, however, not to that of the pigs. Hyenas are a symbol of a cruel woman in Schiller's poem *Die Glocke* (The Bell). The hyenas expose their vulva and live in matriarchy. But the simile agrees only partly with the qualities of a *śālā-vṛkā,* because the hyenas never appear as harmless as the *śālā-vṛkās* do.

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2 From other reasons, this reading is advocated by de Zwart. CF. 'Purūravas and Urvaśī', in: *Orientalia Neerlandica,* Leiden 1948, p.363-371.

3. *Op.cit.* p.61

4. *Woman, androgynes and other mythical beasts,* Chicago 1980, 256, n.15.

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Śālā can also be read as *śālā*, a large tree. These women would then be like a goat, eating the leaves of such a tree as depicted on the Indus tablet 2719c and 2734c, and uprooting it, when it is still young or already old. Of course, all these animals are only similes of the nature of these women. With regard to the related Indus sign, the animal must be a small pet-dog, as it is cherished by modern prostitutes.

The *Bhāgavatapurāṇa* says in IX.14.37,38 in relation to these women:

The sālāvṛkī-women have no compassion,
they are cruel and obstinate and have no respect for a friend;
in retaliation of a little offence they kill the husband
or the brother who entrusted faith into them.
Having false confidence in unknown persons
they abandon their friends; they are prostitutes (puṃścala),
ever looking for another man,
because they cannot live on their own means.

This description refers to profane prostitutes. What Urvaśī says is in agreement with the words of the goddess of Language, Vāc, in ṚV X.125.5,6, whose embodiment she is :

I myself am she, who says,
what is agreeable to gods and to men;
I create quarrel among men,
I penetrate heaven and earth.

Language behaves like a prostitute, when she entices gods and men and incites quarrel among them. The Dawn, too, is compared to a *brotherless woman* in ṚV I.124.7, i.e. to a woman behaving like a prostitute, because she is a friend of everybody.

16: Butter stands for immortality in the Veda like the *soma*, it is hence a fit nourishment for an immortal woman, though it does not sound probable that Urvaśī lived from one drop of butter only in her human form as she pretends in this verse. By this exaggeration, she wants to make clear that she is so fed up with sexuality that even if it is regarded as sacred, it does not attract her any more.

17: Now Purūravas recognizes Urvaśī in her higher nature as Apsaras, who are known of being able to fly. Still he does not want to let her go. As ultimate means, he takes resort to her divine nature, adoring her as a divine image as his *iṣṭā devatā* as it were. He wants her to come to the fire of his burning heart and to stay there and receive the oblations from the sacrifice of his love as a *good deed*. The same words are used in relation to the union of Prajāpati and his daughter that led to the birth of Rudra. But even if her union with Purūravas would have been required for the discovering of fire, as the *Śatapathabrāhmaṇa*

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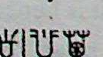
maintains, Urvaśī has enough of it. She does not want to be the object of veneration even. That does not mean that she breaks the laws of nature, on the contrary, it is the law of her nature to act in this way.

Purūravas would not suffer from the pain of separation if he had practised *ūrdhvaretas* (cf.v. 11). But he remained a mortal, a companion of Death, that means that he died after Urvaśī has left him irrevocably. What happens to such a man after death ? He is told that his children will offer *soma* for him and that he will consequently reach heaven. The triple fire and the *soma* belong to the Indus civilization, they were not invented by Purūravas. It is significant that Purūravas is called after his mother here. His father is of no importance. This means that he lived in a matrilinear society. In later literature, Iḷā is turned from woman to man and vice versa, which is the result of her or his androgyn nature.

According to the *Brāhmaṇa*, Urvaśī invites Purūravas to come again after a year and spend one more night with her. After that, the Gandharvas give him a fire-vessel, *sthāli*, literally a stand that can be identified with the standard in front of the unicorn. But Purūravas forgets it in the forest, and is then taught the use of fire-sticks. After he has made a triple fire with them, he ascends to the world of the Gandharvas and is united with Urvaśī again. Fire-sticks are already known in tribal societies and have a mystical meaning already in the Indus civilization.

Let us study now the Indus seals that I have found in relation to this dialogue. Most of them, 17 in number, are from Mohenjo Dharo, one is from Harappa, one from Kalibangan. Several seals can be used by a man for getting back a woman, but their main purpose is to explain the behaviour of the water-woman and to warn men against the bad consequences of their love as it is also the purpose of the hymn. The inscriptions of the seals render its skeleton. Originally they may have been used as proverbs or general rules.

1286 (unicorn) 

haye jāye manasā tiṣṭha ghore vacāṃsi miśrā kṛṇavāvahai nu (lab)
O woman, have understanding, stay, cruel one!
Let us exchange words with each other!

According to the *Brāhmaṇa*, Purūravas meets Urvaśī at a lake, when she is pregnant by him. The first sign of the inscription of seal 1286 denotes a woman pregnant by or with a king, the second can be read as goddess, the long stroke as a lake, the fourth sign as a lotus-flower, the lance-sign as to stay and the comb-sign as cruel woman. The literal translation is: *Pregnant with a king like a lotus-flower in the lake she may not run away like a (cruel) woman.*

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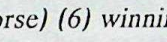
3229 (elephant)

durāpanā vāta iva aham asmi (2d)
iṣur na śriya iṣudher asānā goṣāḥ śatasā na raṃhiḥ (3ab)
I am as difficult to catch as the wind;
like a lucky shot of the arrow, the missile from the quiver,
like the racehorse winning cows, hundreds of (prices)...

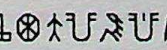
Since Purūravas continues with the simile Urvaśī has started with, the two verses are found on one Indus seal. Its literal translation would be: *Like the wind (1) are the divine water-women (2, 3) for the man (4), like an arrow hitting/missing the target (5), like a long-maned (racehorse) (6) winning (pots with) gold (7).* As usual, the inscription only contains the main words of the verse. The Vedic poet has filled in the gaps, but his supplements are redundant and let Purūravas appear as if he is not able to speak intelligently because of his lovesickness. All the comparisons Purūravas makes use of, refer to the behaviour of the water-women and to unfaithful women in general. The quiver of women are their eyes and their womb.

2111 (unicorn) 

avīre kratau vi davidyutan na
urā na māyuṃ citayanta dhunayaḥ (3cd)
As they let flash up (a lightning) by an unmanly design,
as the Gandharvas made a lamb roar.

The literal translation of the inscription would be: *By an unmanly (2) design (1) they let it flash up (3, 4) like a roaring sheep (5) for Purūravas/the Gandharavas (6) played the flute (7-9).*

The design is identical to a fire-drill. The man-sign with a stroke between the legs is a symbol for a castrate here. It is unmanly for a man to be the slave of a woman. The warrior-sign stands for Purūravas who should have guarded the sheep and for the Gandharvas simultaneously. The last three signs can literally be read as to play a flute by spreading the fingers. All similes illustrate inseparability like the arrow and the quiver. Though the Gandharvas are impotent hermaphrodites and castrates, they enjoy the company of women, whereas Purūravas, though a virile man, is not able to make Urvaśī stay with him, even after she has become pregnant.

2518 (tiger) 

sā vasu dadhati śvaśurāya vaya uṣo yadi vaṣṭy antigṛhāt (4ab)
She gave wealth and youth to the father-in-law;
whenever the lover wished, she came from the inner house.

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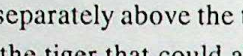
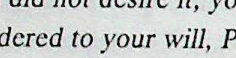
The initial compund can be read as to bring fire or energy, i.e. wealth and youth, the stroke-sign as father-in-law, the diacritic cup-sign and the snake-sign stand for Urvaśī, the second cup-sign, the man-sign and the king-sign for Purūravas, the lover. The king-sign is written separately above the tiger, its image. For *inner house* we get the brickwork under the head of the tiger that could also be a fire-drill.

2297 

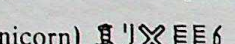
triḥ sma mā 'hnaḥ śnathayo vaitaseno 'ta sma me 'vyatyai pṛṇāsi
Purūravo 'nu te ketamāyaṃ (5a-c)
Thrice a day you have pierced me with the rod,
even if I did not desire it, you filled me;
I surrendered to your will, Purūravas,
you, hero, were the king of my body.

In the original *mantra*, a woman offers her body to a man to seduce him as Yamī does in X.10. Thrice a day is equal to the three strokes and the single stroke at the end. The first long stroke renders the rod or the virile member, the triangle-sign the resisting vulva, the hand-sign with a circle (not) desire, the fish-sign represents the surendering woman, the lance-sign stands for to pierce.

2016 (unicorn) 

samasmiñ jāyamāna asāt gnā utemam avardhan nadhyaḥ svagūrtāḥ
mahe yat tvā purūravo raṇāyā_ 'vardhayan dasyuhatyāya devāḥ (7)'
The heavenly women will sit near his side, when he is born,
the rivers that purify themselves will let him grow,
as the gods have given strength to you, Purūravas,
for the great struggle of the annihilation of the Dasyus.

The literal translation reads simply: *The goddesses (2,3) sitting at the side of the embryo (1) give him the strength (6) to be the foremost (5) of a town (4).* If the penultimate sign is read as to annihilate and the town-sign as the towns of the *Dasyus*, we arrive at the contents of the Vedic verse, but this is obviously contrary to the intention of the seal. Certainly, a man should not waste his time and energy with the pursuit of women, but that does not mean that he should destroy the houses and towns of other people instead. This can only be the injunction of a priest of the later Vedic time, when the Āryans did not longer follow the peaceful life of the Indus cities.

1099 (unicorn) 

sacā yadāsu jahatī ṣvatkam amānuṣīṣu mānuṣo niṣeva
apa sma mat tarasantī na bhujyus tā atrasan rathaspṛśo na_aśvāḥ (8)

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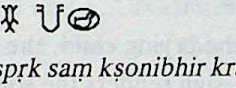
When I, the mortal, approached the immortals,
after they had stripped off their (feather)-dress,
they ran away from me like trembling snakes,
like young mares fearing to be yoked to the car.

The first sign can be read as a horse or a bull, both animals are victims in the sacrifice, and Purūravas, though a king is a victim too. The intersected circles can be read as to approach in a sexual sense, the cup-sign with a stroke refers to an immortal woman and to a snake or mare. The head-sign can be read as a feather-dress here. The horned man-sign and the cup-sign refer to Purūravas as the king or divine man, in front of whom the Apsaras take off their dress, but they run away as soon as he behaves as a mortal and tries to yoke them to a car, i.e. to marriage. Their reaction is indicated by the separate car-sign with an indrawn yoke denoting negation or repulsion.

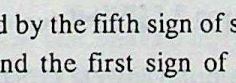
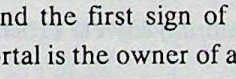
7122 (unicorn)

1093 (unicorn) 

yadā_āsu marto amṛtāsu nispṛk saṃ kṣonibhir kratubhir na pṛṅkte tā ātayo na tanvaḥ śuṃbhata
svā aśvāso na krīḍayo dandaśānāḥ (9)
When a mortal, who wants to touch the immortals,
unites with the big-bosomed according to their will,
we polish ourselves like ducks, (like playing mares we bite).

The Apsaras denoted by the fifth sign of seal 7122 resemble (white) ducks, illustrated by the signs in brackets and the first sign of seal 1093. The playing horses are another reading of the sign. The mortal is the owner of a house illustrated by the first two signs of the second line, the house denoting his potency. Immortal is rendered by the sign of the banyan-tree, that deserves this attribute on account of its airy roots. To feel desire is equal to the bow-sign. The strokes denote the greedy eyes of the bowman. The flower-sign renders the big bosom (*kṣoṇi*) of the water-women, the triangle-sign with a stroke stands for to unite, the last two signs are equal to the will of the water-women.

The inscription of seal 1093 refers to the water-birds, the lover and the desire of the water-woman. They are equal to : *Like ducks the divine women polish themselves, when a worthy man desires them according to their will.*

0126 (unicorn)  1017 (unicorn) 

vidyun na yā patantī davidyod bharantī me apyā kāmyāni
janiṣṭo apo naryaḥ sujātaḥ pra_urvaśī tirata dīrgham āyuḥ (10)
She who flashed up like lightning, the water-woman,
who presented her lovely things to me, has brought forth from
the waters a manly, well-born (son), Urvaśī may have a long life!

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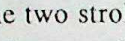
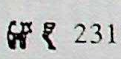
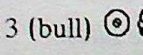
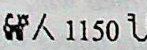
The manly son whom Urvaśī is pregnant with, is rendered by the first compound of seal 0126, the added banner-sign stands for the waters. To flash up is indicated by the second sign, the two strokes are equal to the eyes here. The last two signs denote Urvaśī, who is born in the water like a fish and offers her lovely things.

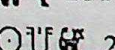
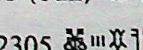
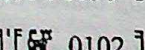
The last two signs of seal 1017 have been restored by me. The first sign can be read as woman and lightning referring to her vulva. The hook-sign stands for Purūravas here. The cup-sign with strokes denotes the water-woman. The crab-sign means to embrace and to show the lovely things. The manly son is equal to the fish-sign and the banner-sign, long life to the sign of a navel-cord. Urvaśī as a divine woman is rendered by the restored signs.

1172 (unicorn) 

cakran na krandad ādhye śivāyai pra tat te hinavā yat te asme (13bc)
(Who) like a cakra [vāka-bird] is crying for loving care
I shall send you that, what is with us belonging to you.

The sign of the peocock stands for the crying child, the cup-sign for loving care, the hand in a circle denotes Purūravas, the fish-sign renders the son, the lance-sign to send. The father has a right over the son, not over the water-woman. This could be a model for modern times.

2527 (tiger)  2313 (bull)  1150 

2219  2305  0102  (unicorn)

na vai straiṇāni sakhyāni santi sālāvṛkāṇāṃ hṛdayāny etā (15cd)
Really, women can never be friends,
they have the hearts of house-wolves,

The six seals show that this verse was very popular in ancient times already. In all the inscriptions, the dog-sign occurs. A dog can be a friend, *sakhin*, but it can also stand for an unfaithful and shameless woman. The Greek philosophical school of the cynics is called after the dog therefore. In the concordances, the dog looks like a terrier, but on the seals it looks more like a gazelle. Such a dog is the pet animal of prostitutes even today. A *Meluḥḥa*-dog is found in Akkadian lists of merchandise.

On seal 2527, the thigh-sign can be read as shameless woman, the dog-sign as bitch, the teeth-sign as vulva. This renders *a shameless woman exposes her vulva like a bitch.* i.e. she can never be a friend.

On seal 2313, the thigh-sign is replaced by an oblique stroke-sign, which means to run away or be unfaithful here. The last sign can be read as navel or vulva again. The inscription of seal 1150 contains the reading *śālāvṛkā* in the sense of tree-eating, the eater is rendered

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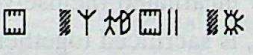
by the cup-sign, the hand-sign and the two strokes denote to catch the seed. The dog is a symbol of the prostitute again. Hence we get : *Prostitutes who catch the seed are like tree-eaters (they kill the trees or men in the disguise of a friend).*

In the inscriptions of the next two seals, the accented cup-sign can be read as woman. The two wheel-signs on seal 2219, refer to their bosom or heart, the bird in brackets depicting a nest or the palm of the hand, refers to their childlike behaviour which needs protection apparently, but, the cup-sign at the end reveals them as goddesses. This renders: *The śālāvṛkā-women appear to have the hearts of childlike birds looking for protection, but they can easily fly away like goddesses* (cf. v.2).

The fish-sign on seal 2305 can be interpreted as a lover. The water-carrier-sign stands for the goddess again, the cup-sign on the top can denote the heart, the three strokes represent the seed here, on which these women live, as it were. Thus we can translate the inscription as : *The śālāvṛkā*-women take away the seed of their lover by simulating love. In reality, they suffer from frigidity. In verse 4 and 5, Urvaśī describes her bad experience with Purūravas' sexuality, here she warns men of women of this sort.

On seal 0102, the first sign can be read as an ornament as it was worn by prostitutes. The two long strokes render *śara (=śāla),* running. These women behave like stray dogs, but the cupsign gives them a sacred character.

2228 

iti tvā devā īm āhur aiḷa yathem etat bhavasi mṛtyubandhu
prajā te devān hāviṣā yajāti svarga u tvam api mādayāse (18)
Thus the gods speak to you, son of Iḷā:
Being as it is, you are a companion of death,
your offspring shall offer soma to the gods,
and you shall enjoy heaven.

The broken seal 2228 has three lines, which have to be read from the bottom to the top here. Of the lowest line only one sign has remained. It can be read as an attractive female eye or as the name of Purūravas' mother Iḷā, which is a synonmy for refreshment a woman should be for the man. The bowman in the second line can be related to Purūravas who is a companion of death denoted by the long strokes and the field-sign, when explained as a pyre or grave. Offer with *soma* is equal to the hand-sign and the lost sign. The second field-sign and the bird-sign with two strokes of the uppermost line render upper place of the birds, i.e. heaven. The fish-sign can be related to Purūravas again. It was a general belief at that time that the dead ancestors went to heaven through the sacrifice of their offspring. It was not Purūravas who inaugurated this sacrifice.

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The *Bhāgavatapurāṇa* states at the end of the Purūravas-episode that Purūravas lived *in the beginning of the Tretā-yuga,* and that before this time, the Veda and the syllable OM (ॐ) and all languages had been one like the sacrificial fire, that was made three-fold by Purūravas according to the *Purāṇa.* We do not know when the *Tretā-yuga* began, but it is possible to associate it with the Indus civilization, since the story of Purūravas could well have taken place in an ancient Indus city furnished with a bath and with hierodules. A threefold sacrificial place is already indicated by the Indus sign .

Tārā, the wife of the divine priest Bṛhaspati, who lived in the same time, was a hierodule, too. Like Helena by Paris, she was abducted by Soma as it is reported in ṚV X.109 in a cryptic form and narrated in the *Bhāgavatapurāṇa* in the previous chapter. Through the raped Tārā, Budha or Mercury is born. Through Iḷā, the daughter and wife of Manu, Budha became father of Purūravas. Manu's father was Vivasvat, the Sun. Manu and Purūravas are the first persons in this genealogy who have a human body and live on earth, whereas their forefathers are personified planets abiding in heaven. Purūravas is the grandson of Manu and the half-brother of his children simultaneously.

The extraterrestrial beginning of the solar and the lunar race does not explain how human civilization started on earth. It can be deduced from this story, however, that it occurred through intercourse between immortals and mortals like between Urvaśī and Purūravas. The immortals did not come to the earth in UFOs, but they incarnated themselves in a human body. The link between the divine worlds and the earth, is sacrificed together with poetical imagination and *yoga.*

The next steps of cultural evolution are quite easy to be explained as a process of acculturation of tribal and urban communities. In this cultural evolution the *Atharvaveda* split from *Ṛgveda,* thereafter the *Sāma-veda* and the *Yajurveda* and the diversity of languages came into being. The ancient *yajus* or sacrificial *mantras* that are contained in the Indus seals, are not identical to the quite modern *yajus* of the *Yajur-veda.* The gods had only one language, in the big cities of the Indus Valley, many nationalities with different languages lived together. The language employed in the sacrificies by the Āryan priests, must have been as near as possible to the language of the earlier gods, also known as the *Asuras.* Their language certainly belonged to the isolating type. It was replaced by an ancient type of Sanskrit that incorporated Muṇḍa and Dravidian words and grammatical traits.

The inscriptions of the seals were written in an isolating language that could easily be translated into Vedic Sanskrit. The Vedic priests were not only Āryans, but, Dravidians too. Even in later time, a lot of non-Āryan names are found with the Vedic poets and others might have adopted an Āryan name though they were non-Āryan by birth. It is most likely that non-Āryan women married Āryan men, who took them for immortal, because they were born in

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a higher social order. Purūravas and Urvaśī are the prototypes of such a 'mixed' relationship which is a form of sacred marriage too.

In ṚV I.32.11, the *Dāsa*-king Vṛtra is described as a lecherous man, who keeps his women imprisoned. This sort of slander is a stereotype that is still used in today's psychological wars between religions and societies. Contrarily to this description, Urvaśī is free to forsake a man, in the same way as the Mesopotamian goddess did it. The Purūravas-Urvaśī-legend deals with the problem of separation from the standpoint of a religion, where women were free to marry or live as sacred prostitutes.

In the era of the *Brāhmaṇas,* Urvaśī's behaviour was modified to fit in the rules of the society of that time. Now she comes back to Purūravas after a year and spends one more night with him. Then Purūravas ascends to the world of the Gandharvas, where he might live together with her for some more time, if he desires so. In this way, separation is removed at least after death.

Sacred marriage was denunciated as immoral then and sexuality was regarded as something profane only. In this way it was easier for the ascetic man to renounce it. We find the same phenomenon in the Catholic church. Marriage is regarded as a sacrament there, but nevertheless the husband is ridiculed.

Nature perpetuates herself, without caring for happiness or suffering of human beings. Only in a few cases, she reveals her higher aim of realizing the truth behind the screen, in general the suffering goes on incessantly. Time is the best teacher, it is said, but it kills its disciples.

The higher aim in life is also manifested in the mortar or whim for generating fire and pressing *soma*. The fire was given to Purūravas according to the *Brāhmaṇa*, but he forgot it in the forest. Likewise, the later Āryans forgot the religion of the Indus society, in spite of the teaching of reincarnation that should have prevented this sort of oblivion. The name of the Gandharva meaning cohabitator (from the root *gadh,* German *Gatte*), is a reminiscence of their invention, because cohabitation is working in the same way as the mortar and the fire-drill. Sacred marriage as a means to secure fertility and for transcending the dual world was replaced by *yoga* with *ūrdhvaretas.*

Urvaśī's behaviour cannot be used to justify the practice of the refusal of contact, often applied by women today to get rid of a man they are weary of, wherein they allegedly follow the practice of men, whom they want to excel on the other hand. Modern women are not like Apsarasas. If they make a contract with a man, it is only for economic reasons, not for inner development. Separation after marriage or already after cohabitation is regarded in modern times as a normal thing, and if somebody does not accept it, he is not only a fool, but a lunatic.

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In the view of the Indus civilization, however, modern societies are a conglomerate of lunatics, who only pretend to be able to deal with separation in a more human way than the ancient societies did, but, who take to violence and even war, whenever their desires meet with resistance. Sacred marriage is not an invention to suppress women, but it is the fundament of the high civilizations of the past. Therefore it deserves tolerance at least and not being treated as being inimical to modern life.

If Purūravas feels to be treated treacherously by a women who follows its rules, he could have practised *yoga* to avoid the suffering from separation. It was known to him according to the genealogies given in *Gītā* 4.4. But if he had done so, we would not have this wonderful dialogue with all its commentaries nor would we have heard anything about the water-women, whose love serves a higher purpose by elevating man to a higher level of existence.

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The numbers of the seals were taken from the Finnish concordances, published by Asko Parpola and others in Helsinki 1987 and 1992.

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RELIGION AND PHILOSOPHY OF THE *ṚGVEDA*

YOGINI H. VYAS*

Vedas are regarded as the original source of Indian Religion, Philosophy and Culture. They are as adorned as 'a permanent eye', *veda'scakṣuḥ sanātanam.* While Ādi' Śaṅkarācārya has proclaimed that vedo *nityamadhīyatām* 'Study Veda daily'. In Indian tradition it is firmly established that *nyaset sarvāṇi karmāṇi vedamekam na sannyaset.* One may renounce all types of actions but one should not give up study of the Veda.

The Vedas constitute the back-bone of our entire culture and development through the millennia. For a healthy and beneficial life, *Dharma* or Religion is needed. Our *Sanātana-Dharma* is based on 'The *Śruti*' consisting of four Vedas. The contribution of the Vedas in different disciplines of knowledge such as physics, chemistry, mathematics, geology, languages, literature, fine arts, astronomy, spiritualism, religion, philosophy and cultural tradition is stupendous. One life- time is not enough to do adequate research in any one of these disciplines. Still scholars and researchers will continue their favourite field which they are passionate about and present their findings, interpretation, application to the world.

The essential feature of the religion of the Aryas or the Vedic religion as it is called after its scriptures, is the personification and worship of bright powers of nature, called the *Devas* or shining ones and conceived as immortal. They are mighty, benevolent and bestowers of prosperity. The character of the Vedic gods is also moral. They are 'true' and not 'deceitful' being throughout, the friends and guardians of honesty and virtue. But the divine morality only reflects the ethical standard of an early civilization. Thus even the alliance of Varuṇa, the most mortal of the gods, with righteousness is not such as to prevent him from employing craft against the hostile and the deceitful man. The fetters with which he binds sinners are often mentioned. Though dispeller, hater and punisher of falsehood, he is gracious to the penitent. He releases men not only from the sins which they themselves commit, but from those committed by their fathers.[1] The following stanza

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* Uma Arts College, Gandhinagar, Gujarat.

1. अव द्रुग्धानि पित्र्या सृजा नोऽव या वयं चकृमा तनूभिः । ऋ.७.८६.५
ऋग्वेदसंहिता, संपा. पं. श्रीपाद दामोदर सातवलेकर,
स्वाध्याय - मण्डल, पारडी, जि. वलसाड, चतुर्थसंस्करणम् ।

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from a hymn to Varuna (Ṛg. 7.89) illustrates the spirit of the prayers addressed to him.[2]

In the beginning of the *Ṛgveda*, we find a hymn of Agni.[3]

Ṛgveda contains more than 1400 *mantras* for *Agnidevatā* alone. The Vedas know no temple service or abiding places of worship. The *Vedi* or altar was made in the house of the sacrificer. The fire was kindled by friction and then put in three separate places within the altar ground. Thrice a day was honour paid to the fire with offerings and hymns. The *ṛṣis* offered milk, butter, grain and cakes to Agni by ladle, *sruk* and two *darvīs*. In some sacrifices, there were animal offerings also. *Yajña* was consecreted, coordinated, well-planned and selfless effort for human welfare. The *ṛṣi* says, 'kindled and established on the earth, The fire Divine rises and spreads over all created worlds. May the Fire Divine, the invoker and purifier, eternal, all wise and adorable, establish our relations with Nature's forces.[4]

We can also get the *Mantras* which illustrate *yajñapraśaṁsā* and *yajñānuṣṭhāna* related with *dāśatrayī*.[5] The number of priests engaged in *Yajña* was already quite large.[6]

The Vedic verses refer to Nature's eternal history, but not the history of a human achievement. They do not bring any human personality between MAN and his GOD. The verses refer us to the glory of GOD in his creation and ask us to establish a personal link with Him in the innermost core of our heart, where we can feel His throb, hear His voice and see His enlightenment. Man-based religions are of a later date, whereas man's natural religion is eternally with him.

The Vedic concept of God is perfectly ethical and hence the Vedic verses uphold

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2. यत्किं चेदं वरुण दैव्ये जनेऽभिद्रोहं मनुष्याश्चरामसि ।
अचित्ती यत्तव धर्मा युयोपिम मा नस्तस्मादेनसो देव रीरिषः ॥ ऋ.७.८९.५

3. ॐ अग्निमीळे पुरोहितम् । यज्ञस्य देवमृत्विजम् । होतारं रत्नधातमम् ॥ ऋ.१.१.१
The whole hymn consists of nine *mantras*.

4. समिद्धो अग्निर्निहितः पृथिव्यां प्रत्यङ् विश्वानि भुवनान्यस्थात् ।
होता पावकः प्रदिवः सुमेधा देवो देवान् यजत्वग्निरर्हन् ॥ ऋ.२.३३.१

5. ऋ.१.१५.७, २.२६.१, ३.२८.१, ४.५०.६, ५.४.५, ६.१५.१६,
७.४२.५, ८.३८.४, ९.१०७.६ and १०.१५७.१

6. अध्वर्युः, नेष्टा, होता, प्रशास्ता, ग्रावस्तुत् ऋ.१.१६२.५, १०.९१.१०,
ब्रह्मा-अग्नीत्, पोता ऋ.१०.९१.१०,
ब्राह्मणाच्छंशी ऋ.२.४२.२, उद्गाता ऋ.२.४३.२,
प्रस्तोता ऋ.८.१३.१९

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high moral values of life. God is Truth personified,[7] Activity personified,[8] Purity personified, Love personified and Bliss personified.[9] We crave to imbibe within us a bit of His qualities. The Vedic *Dharma* is thus the morality based *Dharma*, based on truth and its acceptance for life, i.e. faith (*śraddhā*), austerity (*tapas*), pity (*dayā*), selfless service and dedication (*yajña*), generosity (*dāna*), peace (*śānti*), friendship (*maitrī*), fearlessness (*abhaya*) and mutual understanding (*saumanasyam*).

Ṛta or truth is the most important single word in the *Ṛgveda*.[10] The term *Ṛta* in the Veda is the truth of Becoming and which indicates the cosmic order. The *Ṛta* symbolizes the rhythm or the pulse of the cosmic working, it is the empirical knowledge of the creation, construction and progress. These are all governed by *Ṛta* which destroys *Anṛta*, chaos and ignorance. Then there is *Satya*, the truth of Being, it is eternal Brahman, the self existent.

Soma represents the ultimate end of human spiritual endeavour, the fullness of awareness, potency and joy. In short, immortality. Vedic *ṛṣis* worshipped Soma as a

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7. ऋ.४.२३.१, ४.२३.८
8. ऋ.५.५१.१५, १०.११७.७
9. नहि मे रोदसी उभे अन्यं पक्षं च न प्रति कुवित् सोमस्यापामिति । ऋ.१०.११९.७
10. (१) सत्यं वा ऋतम् । श.ब्रा. ७.३.१.२,३
    शतपथब्राह्मणम्, संपा.पं. चिन्नस्वामी शास्त्री, पं. पट्टाभिराम शास्त्री, चौखम्बा संस्कृत संस्थान, वाराणसी, द्वितीय आवृत्ति, १९८४
    (२) ऋतमिति सत्यमेतत् । श.ब्रा. *Ibid*, ६.७.३.११
    (३) ऋतमित्येष (सूर्यः) वै सत्यम् । ऐ.ब्रा.४.२०
    ऐतरेयब्राह्मणम्, संपा. सुधाकर मालवीय, भाग १,२ प्रकाशक, तारा प्रिन्टींग वर्कर्स, वाराणसी, प्रथम संस्करण, १९८०-१९८३
    (४) अग्निर्वा ऋतम् । तै. ब्रा. २.१.११.१
    तैत्तिरीयब्राह्मणम्, संपा. एन. शास्त्री गोडबोले, आनंदाश्रम, पूना, १८९८
    (५) ऋतमेव परमेष्टिः । तै. ब्रा. *Ibid*, १.५.५.१
    (६) मनो वा ऋतम् । जै.ब्रा. ३.६५.५
    जैमिनीयब्राह्मण, संपा. डॉ. लोकेशचन्द्र, सरस्वती विहार, दिल्ली, १८११.
    (७) ब्रह्म वा ऋतम् । श.ब्रा. *op.cit.*, ४.१.४.१०
    (८) ओममित्येतदेवाक्षरमृतम् । जै.ब्रा. *op.cit.*, ३.६५.५
    (९) ऋतेनैवैनं स्वर्गं नाकं गमयन्ति । तां.ब्रा. १८.९.२ ताण्डवब्राह्मण, संपा. चिन्नस्वामी शास्त्री, चौखम्बा संस्कृत संस्थान, वाराणसी, १९८७
    (१०) ऋतञ्च सत्यं चाभीद्धात्तपसोऽध्यजायत । ऋ.१०.१९०.१

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king.[11] Like Agni, Soma also dwells as the immortal among mortals, yet a thing among things, in the shape of the Soma plant, of which the juice is offered by men as the most precious oblation to the gods, the one offering for which the gods are always greedy establishes the firmest bond of friendship between man and the gods. The Vedic *ṛṣis* says, 'The Blissful Force of Divine Will Awakens my inner spirit from sleep.'

The inspring Soma, the Divine Love, dispenses the six evils, lust, anger, greed, attachment, pride and jealousy, weakness from which no creature is exempt.[12]

Bloomfield, noted in his *'Religion of the Veda'*, 'It is an accepted fact with each people that Soma was an intoxicating drink, and that it was regarded as the tipple of the gods, inspiring them to those various deeds which men craved to them.[13]

The commonest term used in the *Ṛgveda* to signify both the activity and its result, the poem made and the making of it, is *Brahman*, which means formulating, giving poetic form, a verbal formulation. The *ṛṣis* make a *Brahman* in praise of or invoking particular deity. Once made, the *Brahman* can be recited, spoken, sung, heard and according to the emphasis on its specific modality, it is variously termed *dhī, vāk, mantra, uktha, stoma, girā, manma* or just *ṛk*.

Marriage in the Vedic age was regarded a religious sacrament and indissoluble by human action. The wedding hymn (Rg. 10.85) throws interesting light on the marriage ritual of the Vedic period. At the time of marriage, the bride wore lovely dress. The bridegroom came with the party often from a long distance as is proved by the prayers to make the paths smooth and straight. The assembled guests were asked to behold the bride of auspicious mien and to wish her good luck. Blessing are then invoked on the wedding procession, and a wish was expressed that the newly-married couple may have many children and enjoy prosperity, long life and freedom from disease. The bridegroom addresses the bride : 'I take thy for prosperity so that you may grow to old age with me-

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11. सोम राजन् मृळयानः । ऋ.८.४८.८
सोमो राजा प्रथमः । ऋ.१०.१०९.२
सोमेन सह राज्ञा । ऋ.१०.९७.२२
सोमं राजानमवसे । ऋ.१०.१४.३

12. अयं मे पीत उदियर्ति वाचमयं मनीषामुशतीमजीगः ।
अयं षळुर्वीरिमिमीत धीरो न याभ्यो भुवनं कच्चनारे ॥ ऋ.६.४७.३
See also : Ṛg 6.47.5, 9.1.1; 9.2.7, 9.3.5, 9.6.8 etc.

13. Bloomfield M., *The Religion of the Vedas*, New York, 1908, p.143 also, Macdonell A.A., *History of Sanskrit Literature*, Motilal Banarssidas, Delhi, Second Edition, 1971, p.98.

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thy husband. The Gods Bhaga, Aryaman, Savitṛ, the wise Pūṣan have given thee to me for performing the duties of a householder.[14] On reaching the house, the husband prays 'May the universal Gods unite both our hearts; may the waters unite them; may MĀTARIŚWAN', DHĀTRĪ and the bountiful (SARASVATĪ) unite both our hearts.[15]

Five hymns of the tenth book of the *Ṛgveda* (10.14 to 18) throw some light on the funeral rites and the conception of future life. Though cremation was the usual method of disposing of the dead, burial was also practiced. *Pitṛs* burnt with fire and those not burnt with fire (i.e. burried) are referred to.[16] Only the last *maṇḍala* of *Ṛgveda* (10.18) is a funeral hymn in the true sense. It is secular in style as well as in matter, being almost free from references to any of the Gods. We can find a simile in this *mantra* 'Earth, rise up above him; oppress him not; be attentive to him (and) comfortable; cover him up, earth, as a mother covers her child with the skirt of her garment'.[17] In another hymn the 'house of clay' is mentioned.[18]

The *Ṛgveda* often mentions the joys of heaven whose name *svarga* is known to it.[19] The deceased there enter upon a delectable life.[20] There are eternal lights and swift waters; joys and merriments and the fulfillment of desires in it. In the ninth *maṇḍala,* there is a prayer to Soma Pavamāna. : "O Pavamāna, place me in that deathless, undecaying world wherein the light of heaven is set, and everlasting luster shines".[21]

Vedas are the immeasurable oceans of knowledge because they contain mysteries and mysticism, metaphysics and sciences, religion and philosophy. There are some important ideas on cosmology also. The Vedic seers contemplated and wondered at the marvels of nature and the mysteries in the vast and variegated world that they lived in and tried to unravel the enigma of creation. In fact cosmology which aims at finding out the common origin of the diverse phenomena of nature, is an important aspect of ancient

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14. ऋ.१०.८५.३६
15. ऋ.१०.८५.४७
16. ये अग्निदग्धा ये अनग्निदग्धा मध्ये दिवः स्वधया मादयन्ते ।
    तेभिः स्वराळसुनीतिमेतां यथावशं तन्वं कल्पयस्व ॥ ऋ.१०.१५.१४
17. ऋ.१०.१८.११
18. मो षु वरुण मृन्मयं गृहं राजन्नहं गमम् ।
    मृळा सुक्षत्र मृळय ॥ ऋ.७.८९.१
19. ऋ.१०.९५.१८
20. हित्वायावद्यं पुनरस्तमेहि
    सं गच्छस्व तन्वा सुवर्चाः । ऋ.१०.१४.८
21. ऋ.९.११३.७

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Indian philosophy and wisdom. There are six or seven cosmogonic hymns of the *Ṛgveda*. In one of them the well known Hymn of *Puruṣa* (*Puruṣa-Sūkta*), the gods are still the agents, but the materials out of which the world is made, consists of the body of a primeval giant, *Puruṣa*, who being thousand headed and thousand - footed, extends beyond the earth, as he covers it.[22] Macdonell notes, "The fundamental idea of the world being created from the body of a giant is, indeed, very ancient being met with in several primitive mythologies. But the manner in which the idea is here worked out is sufficiently late.[23]

Griffith also notes, "This panthistic hymn, which is generally called the *Puruṣasūkta*, is of comparatively recent origin and appears to be an attempt to harmonize the two ideas of Sacrifice and Creation."[24]

The *Ṛgveda* mentions the four castes for the first and only time. The *ṛṣi* Nārāyaṇa says, '*Puruṣa's* mouth became the *Brahman*, his arms the *Rājanya'* (warrior), his thighs the *Vaiśya*, (agriculturist), and his feet the *Śūdra* (serf).[25] Another hymn (X.121) known as the *Hiraṇyagarbhasūkta*, describes the universe as created by Prajāpati the Lord of creatures.

Hiraṇyagarbha was present at beginning; when born, He was the sole Lord of created beings, He upheld this earth and heaven. Let us offer worship with an oblation to the divine.[26] The third hymn (x.129), the famous *Nāsadīyasūkta* says that nothing existed in the beginning except that One who breathed windless by his own power. That one then manifested Himself. In Him desire, the first seed of mind, arouse.[27]

The *Viśvakarmāsūkta*, *Māyābhedasūkta*, *Aghamarṣaṇasūkta*, *Vāksūkta* reflect light on the philosophical ideas of the *Ṛgveda*.

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22. स॒हस्र॑शीर्षा॒ पुरु॑षः सहस्रा॒क्षः स॒हस्र॑पात् ।
स भूमिं वि॒श्वतो वृ॒त्वात्य॑तिष्ठद्दशाङ्गु॒लम् ॥ ऋ.१०.९०.१

23. Macdonell A.A., *op. cit.* 112.

24. Griffith T.H., *The Hymns of the Ṛgveda*, The Chowkhamba Sanskrit Series Office, first edition, Varanasi, 1971, Vol. II, p.520. Max Muller F., *Ancient Sanskrit Literature*, Varanasi, 1970, p.570.

25. ब्रा॒ह्म॒णो॑ऽस्य॒ मुख॑मासीद्बाहू॒ रा॑ज॒न्यः॑ कृ॒तः ।
ऊ॒रू तद॑स्य॒ यद्वैश्यः॑ प॒द्भ्यां शू॒द्रो अ॑जायत ॥ ऋ.१०.९०.१२

26. हि॒रण्य॒ग॒र्भः सम॑वर्त॒ताग्रे॑ भू॒तस्य॑ जा॒तः पति॒रेक॑ आसीत् ।
स दा॑धार पृथि॒वीं द्याम॒ुतेमां कस्मै॑ दे॒वाय॑ ह॒विषा॑ विधेम ॥ ऋ.१०.१२१.१

27. Winternitz. M., *History of Indian Literature*, Calcutta, Vol. I, p.87.

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In Vedic poetry, the tiny little Soul and the Supreme Self are both taken to be two birds (*Suparṇā*), mutual friends and companions:

"Two birds, which are closely associated and intimate friends, perch on the same tree. Of them one (the lower soul) tastes of its fruits, the other (the Supreme Lord) shines resplendently without tasting."[28]

The *Ṛgveda* says to mankind,
'O citizens of the world !
Live in harmony and concord.
Be organised and co-operative.
Speak with one voice.
And make your resolutions with one mind.
Our ancient saints and seers
Leaders and preceptors
Have performed their duties righteously,
Similarly, may you not falter
To execute your duties.[29]

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28. द्वा सुपर्णा सयुजा सखाया समानं वृक्षं परि षस्वजाते ।
तयोरन्यः पिप्पलं स्वाद्वत्त्यनश्नन्यो अभि चाकशीति ॥ ऋ.१.१६४.२०

29. सं गच्छध्वं सं वदध्वं सं वो मनांसि जानताम् ।
देवा भागं यथा पूर्वे संजानाना उपासते ॥ ऋ.१०.१९१.२

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ON TWO ETYMOLOGIES IN THE *JAIMINĪYA BRĀHMAṆA*

MADHAVI KOLHATKAR*

The *Nirukta* is taken to be the first lexicon of Sanskrit language. It explains the word giving its etymology. It is seen so many times that the *Nirukta,* while explaining certain words resorts to the explanation offered by the Brāhmaṇa texts, which are the first commentaries on the Saṃhitās. In their attempt of explaining the texts, they also offer etymologies, and hence they can be considered the first etymological dictionaries of the Sanskrit language.

Gonda has worked on some etymologies in the Brāhmaṇas. Therein he has chosen only four etymologies from the *Jaiminīya Brāhmaṇa* (=JB). It would be worthwhile hence to have a close look at some more etymologies in this text, following the guidelines laid down by him in his analysis.

1. The etymology of the word *giri* : The passage at JB. 1.223 is about *gāra Sāman.* Thus it reads : *idaṃ vaso sutam andhaṇ iti gāram / devebhyo vā asurā garān prākiran / tān avidvāṃso'girann annam eva manyamānāḥ / te garagiro'manyanta / te'kāmayanta apemān garān gīrṇān hanīmahīti / te etat sāmāpaśyan / tenāstuvata / tenemān garān gīrṇān apāghnata / ta eveme girayo'bhavan / tad yad garān gīrṇān apāghnata tadeva gārasya gāratvam /* Bodewitz has traslated it as : "The *Gāra* chant is sung on verses beginning with,"Here, O Good One, is the pressed plant. The *asuras* strewed some poison for the gods. Not knowing (what it was) and thinking it to be food they swallowed it. Then they got the idea that they had been poisoned. They desired, "May we get rid of this poison which has been swallowed". They saw this chant and praised with it. Thereby they got rid of the swallowed poison (*garān gīrṇān*), therefore the *Gara* is called *Gāra.*"

Caland also has translated it in similar way in the foot-note in his translation of the *Pañcaviṃśa Brāhmaṇa,* while commenting on 19.4.10.

If following the translation and the meaning given in the dictionaries, the word *gara* is accepted to mean poison, there arises some difficulty. Thus it is : 'The meaning of *giri* is known. It means 'a mountain'. When it is said that the spit out *garas* formed mountains,

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* 885/3, Bhandarkar Road, 6th Lane, Deccan Gymkhana, Pune-411004.

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what was the form of that *gara* or poison ? Was it liquid, powder or solid ? It cannot be liquid, since it cannot turn into a mountain. It would be ocean. It cannot be powder since it cannot be separated after swallowing and also cannot be spit out separately. Hence, it has to be in solid form. Then again if it was solid, why could it not be separated before partaking ? Why was it thought or taken as *anna* itself ? Also no effect of poisoning is stated.

In JB. itself the mention of *gara* has come at one more place in the passage 2.83 which reads : *athaiṣa punastomaḥ / sa hāyam ṛṣirāgatya na śaśākotthātum asurāśanena / garo hainam āviveśa yad vā mitrāya dudroha yad vā vidviṣāṇām aśanam āśa / sa hendram uvāca na vai śaknomyutthātum iti / ..... sa hātiprarikto na śaśākotthātum /* "Now this *Punastoma*. Thus this *ṛṣi* came and could not get up due to partaking of the food of the *asuras*. It was the *gara* which afflicted him, whether he traited his friend or ate the food of the enemies. He said to Indra, "I cannot get up."... Since he purged excessively, he could not get up or stand up." (Translation mine.)

In this passage it is easy to accept *gara* as poison, since the effects, if not of poisoning as such, of food-poisoning are stated in it. Such is not the case however, at JB.1.223. The gods there do not at all seem to be affected by poison or the toxins caused by bad or deteriorated food, i.e. food-poisoning.

Regarding the etymologies in the Brāhmaṇas, one of the observations Gonda noted is that there is the possibility of Prakrit influence. Taking it into consideration, the Prakrit vocabulary and also Prakrit grammar should be checked in this regard. In one of the Jain scriptural texts, a Prakrit text called *Vyavahārasūtra*, the word *gara* is attested. The *sūtra* 4.43 reads - *nīsaraṇa kucchaṇā gāra kaṇṭakā sigga āyabhedo ya / sañjamato pāṇādi āgāha //* The commentary states - *gārāḥ karkarakāḥ /* Referring to this occurrence, in the scriptorium of the Prakrit dictionary of the Bhandarkar Oriental Research Institute, Pune, the meaning assigned to the *desī* word *gāra* is stone or pebble and the word is derived from Sanskrit *grāvan*. The *Prākṛitaprakāśa* of Vararuci gives a *sutra ā samṛddhyādiṣu vā*, 1.2 according to which the vowel *a* in Sanskrit changes to *ā* in Prakrit and vice verse. Hence, the word *gara* in JB. in Sanskrit can be related to the Prakrit word *gāra*.

Similar to *desī*, in Marathi also there is a word *gāra*, meaning a small translucent whitish or pinkish pebble stone, which can easily be missed for a pinkish white, less husked rice-seed. In olden days, rice used to be mixed with such stones, sometimes purposefully, to get more profit. Even after the rice was cooked, these stones were difficult to be distinguished and were noticed only while eating. If this meaning for *gara* in JB. were accepted, then the passage becomes more intelligible, as, "It is the *gāra Saman* as *idaṃ vaso sutam andhaḥ*. The *asuras* spread small stones in the food (better, cooked rice) for

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the gods. Not noticing them, they put them in mouth thinking it is cooked rice. Thus they thought that they have taken stone in mouth. They desired, "Let up spit out and collect the stones." They saw this *Sāman* and praised with it. With that they spit out and collected the stones, which they had put in mouth. Those indeed became *giris*, i.e. the mountains. Therefore, as the *gāras* are taken in the spit out and collected (with the help of this *Sāman*), that is the *gāratva* (the state of being related to *gāra*) of this *gāra Sāman.*"

It is worthy to be noted further that there is, in Marathi, a word for mountain as *gaḍa*, which can be connected with *gara*. Also the word for stone in general is *dagaḍa*, and a small fortified, palacial citadel is called *gaḍhī*. Also in Prakrit is attested the word *gaḍa* in *girigaḍa* in *Desīnāmamālā*, 2.110, which can mean either a big rock or a hill or a mountain. Similar to *dagaḍa* is attested a word *ḍagalakā* in *Oghaniryukti*, Folio 132B.11 (*sūtra* 359). Commentary on it, *Droṇīyavṛtti* states - *ḍagalakā iṣṭakākhaṇḍā*. The hail is called *gārā*(f.) 'pertrified snow' in Marathi and hence perhaps the word for cool or cold is *gāra*.

Moreover, in *Sāmavidhānabrāhmaṇa* 3.4.3 there is a sentence as *garagolikāṃ vā samudge'vadadhāti suṣama hi ta ityetadgītvā vāgyataḥ prasvapet* / This garagolikā also better be taken to mean 'a rounded pebble stone' (in Marathi gāragoṭī) rather than a pill or poison, as is suggested by Sāyaṇa.

2. Regarding some of the etymologies, Gonda has rightly remarked that there is the possibility of Prakrit influence as well as the presupposition of identical pronunciation of the sibilants, i.e. *sa* and *śa*. Both these tendencies seem to be present in the etymology presented in JB. 3.334-335. It is necessary to take into account the Sanskrit text. The passage reads - *so'yaṃ garbho'jāyata .....atha yat kumāro jāyamāno vā jāto vā sīsavaṃ katoti tadeva sīsam abhavat / tasmāt tad durgandhitamam* / "The embryo or child is born..... That *sīsava* which the child does while being born or after being born itself became *sīsa*. Hence that is the most bad-smelling one."

Here it is clear that due to the phonetic similarity the words *sīsa* and *sīsava* are conncected with each other. It is stated here that the *sīsa* is the most bad-smelling one. But it is difficult to believe that the lead has smell. It cannot be proved. Then what is the *sīsava* ? As is clear from the *Vedic Index*, this is an *hapax legomenon*, 'the only occurrence' of the word in the Vedic literature. In a short note to it, it is stated therein, '(*sīsa-sadṛśa-) śakṛt / sādṛśyārthe taddhitaḥ draṣṭavyaḥ* / Thus the word seems to be separated as *sīsa* and the *taddhita* suffix *va*, which is added to show similarity; and then it suggested the meaning 'similar to *sīsa*, i.e. lead' and hence the *śakṛt*, i.e. 'the human dung or shit'. However, it seems to be logically fallacious argument. Based on the word *sīsa*, which is yet to be derived, the word *sīsava* is deciphered. It is cyclic argument, though the

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references to the child, birth and bad smell are valid.

Nothing similar could be found in Prakrit. However, in Marathi, there is a word as *śīśu*. It is a compound of *śī* 'dung' and *śū*, 'urine'. Instead of presuming suffix *va* as *sādṛśyārthe* 'for the sake of showing similarity', suffix *a* can be taken *svārthe* 'for the sake of denoting the same meaning'. Then the word *sīsava* seems to be formed without the *ādivṛddhi* 'the lengthening of the initial letter', which is not very uncommon while forming the *taddhitas*. The reason for such avoidance might be to distinguish it from *śaiśava* 'childhood' derived from another word *śiśu* 'a child'. Similar form or word might have been in Prakrit as *sīsava*. If this were accepted, then only the sentence can make sense to some extent, as - "The embryo is born. ....That *sīsava* i.e. the passing of shit and urine the child does while being born or after being born, itself became the sīsa, 'the lead'. Hence that is the most bad-smelling one." The lead however, has no smell, let alone bad smell.

Conclusion :

If the meaning of these two words is accepted, then-

1. It is better to take the meaning of *anna* in this passage as cooked rice. Further then it shows some connection of JB. with Prakrit and the region of Maharashtra and Karnataka through which, it may be, that the words might have got additional meaning.

2. There should be additional meaning assigned to *gara* as pebble-stone in the Sanskrit-English Dictionary; and

3. The word *sīsava* would mean human dung and urine.

One might be reminded here of what Katre has stated, "The reason for this development of several meanings of one word may be connected with the advance of civilization or culture which create a need for means of expressing new kinds of action, etc. Two ways are employed for this purpose: a) a few of the important lexemes may be borrowed as loan words from languages which have words for these new experiences, b) the more usual method for increasing the range of lexeme-meanings is through addition of new meanings to words already in the language. Thus the existing lexemes begin to serve a double purpose and gradually acquire a larger field of usage. An unraveling of this process in its time and space axis will illuminate many dark corners of history for which there is no other record available." And also "Language is a notoriously flexible instrument which registers culture change perhaps more sensitively than does any other phase of culture. Such changes may affect phonetics, vocabulary or grammar. It is primarily in vocabulary that they can be traced more readily, whether they be conceived as due either to development within the culture or the effect of external stimuli."

Thus it can be said following Gonda that "at least part of these ancient etymological

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speculations are worthy of our serious consideration," and the close study of those would bring some new points to light.

Notes :

1. I am grateful to the staff members of the Prakrit dictionary Department, expecially Prof. Potdar for guiding me in this regard.
2. This citation from the JB. is unfortunately not included in the article on *anna* in the *Encyclopaedic Dictionary on Historical Principles,* Vol. 7, 2004-5. Deccan College, Pune.

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લેખકોને :

૧. પાનની એક જ બાજુએ, ટાઈપ અથવા કોમ્પ્યુટરમાં તૈયાર કરેલા અને એ શક્ય ન હોય તો શાહીથી સુવાચ્ય અક્ષરે લખેલા લેખો મોકલવા. ટાઈપ/કોમ્પ્યુટર નકલમાં ભૂલોને સુધાર્યા પછી જ લેખ મોકલવો. ગૂજરાત વિદ્યાપીઠના જોડણીકોશ પ્રમાણે જોડણી રાખવી આવશ્યક છે. લેખની મૂળ પ્રત જ મોકલવી. લેખની કાર્બન નકલ મોકલો ત્યારે તે અંગેનું સ્પષ્ટ કારણ જણાવવું.

૨. લેખમાં અવતરણો, અન્ય વિદ્વાનોનાં મંતવ્યો ટાંકવામાં આવે તો તે અંગેનો સંદર્ભ પૂરેપૂરી વિગત સાથે આપવો અનિવાર્ય છે. પાદટીપમાં એ સંદર્ભની વિગત આપતાં લેખક અથવા સંપાદક/સંશોધક (અટક પહેલી), ગ્રંથ, પ્રકાશક, પ્રકાશનવર્ષ, આવૃત્તિ, પૃષ્ઠ એ ક્રમ જાળવવો જરૂરી છે.

૩. 'સ્વાધ્યાય'માં છપાયેલ સર્વ લેખોનો કોપીરાઈટ મહારાજા સયાજીરાવ યુનિવર્સિટી, વડોદરા હસ્તક છે. લેખકે અથવા અન્ય કોઈએ લેખમાંનો કોઈ અંશ લેખિત પરવાનગી વગર પુનર્મુદ્રિત કરવો નહીં.

૪. સંક્ષેપશબ્દો પ્રયોજતા પહેલાં એ શબ્દો અન્ય સ્થાને પૂરેપૂરા પ્રયોજેલા હોવા જોઈએ.

૫. પાદટીપોનો ક્રમ સળંગ રાખી જે તે પૃષ્ઠ ઉપર તે તે પાદટીપોનો નિર્દેશ જરૂરી છે.

સ્વાધ્યાય

સ્વાધ્યાય અને સંશોધનનું ત્રૈમાસિક

સંપાદક : **મુકુંદ લાલજી વાડેકર**

વર્ષમાં ચાર અંક બહાર પડે છે – વસંતપંચમી અંક, અક્ષયતૃતીયા અંક, જન્માષ્ટમી અંક, અને દીપોત્સવી અંક

લવાજમ :

- ભારતમાં ..... રૂ. ૪૦.૦૦ (ટપાલ ખર્ચ સાથે)
- પરદેશમાં ..... યુનાઈટેડ સ્ટેટ્સ ઓફ અમેરિકા માટે ..... ૧૨.૦૦ ડૉલર (ટપાલ ખર્ચ સાથે)
- યુરોપ અને અન્ય દેશો માટે ..... પૌ. ૭.૦૦ (ટપાલ ખર્ચ સાથે)

આખા વર્ષના ગ્રાહકો લવાજમના વર્ષની શરૂઆતથી જ નોંધવામાં આવે છે. લવાજમ અગાઉથી સ્વીકારવામાં આવે છે. લવાજમ મોકલતી વખતે કયા ગ્રંથ માટે લવાજમ મોકલ્યું છે તે સ્પષ્ટ જણાવવું. લવાજમવર્ષ જાન્યુઆરીથી ડિસેમ્બર સુધીનું ગણાય છે, જે આ સરનામે મોકલવું.

નિયામકશ્રી, પ્રાચ્યવિદ્યામંદિર,
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રાજમહેલ દરવાજા પાસે, રાજમહેલ રોડ,
વડોદરા – ૩૯૦ ૦૦૧.

જાહેરાતો :

આ ત્રૈમાસિકમાં જાહેરાત આપવા માટે લખો

સંપાદક, 'સ્વાધ્યાય',
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THE *SARPAS*, SARPA-PEOPLE AND THE *SARPAVIDYĀ*: A PROBE INTO SANSKRIT TEXTS

MADHAVI R. NARSALAY*

Introduction:

Snakes fall in the ophidian order of reptiles•. Reptiles have a history of 240 million years on this earth. There are nearly 2,000 species of snakes on this earth and they predominate the warm climate and lush green regions of the tropics. In India, there are 216 species of snakes of which about 52 are those whose bite can cause some toxic symptoms in human beings.[1] The snake is unlike other animals, owing to its peculiar shape and its swift gliding motion without the aid of feet or wings. In addition to these most conspicuous properties the snake possesses other strange features such as the power of fascination of its eye, its forked tongue and the periodical casting of its skin. The snake is indeed, the uncanniest animal of all animals. Above all things, it is the deadly poison of certain snakes that causes the whole species to be looked upon as dreadful and therefore was propitiated in the ancient times. Hence snakes/serpents occupy an important position in Sanskrit texts.

The term '*vidyā*' is derived from the root √*vid jñāne* which means 'to know'. The connotation of this term extends beyond mere knowing anything. *Vidyā* stands for knowledge of a particular subject. The number of *vidyā-s* varies from text to text. The given subject *Sarpavidyā* occurs in the *Śat. Br.* (*Śatapatha Brāhmaṇa*) (XIII. 4.39) in the *Pāriplava* narration. The *Pāriplava* is one of the special features of the *Aśvamedha*. The sacrificial horse is allowed to roam about for one year. During this time several rites are performed and the *Pāriplava Ākhyāna*-s i.e. revolving cycle of legends are narrated.[2] In this *Pāriplava* narration the *hoṭr* (priest of the Rgvedic tradition) invites the *adhvaryu* (priest of Yajurvedic tradition) for reciting the *Pāriplava*. It makes a mention of Arbuda Kādraveya,

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* Department of Sanskrit, University of Mumbai, Mumbai.

• Snake and serpents are used as synonyms in this paper.

1. Deoras, P.J., *Snakes of India,* National Books Trusts, New Delhi, 1990, Chapter I, pp.1-2.
2. Chakrabarti, Samiran Chandran, 'A Study of the Pariplava', *Indo-Iranian Journal,* Vo.32, 1989, Netherlands, pp.255-267

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as the king of serpents and the science which he expounds is the *Sarpavidyā*[3]. His subjects are the *Sarpa*-s and the representatives present in the *Aśvamedha* are serpents and snake charmers. The *Pāriplava Ākhyāna*-s are also referred to in the *Āśvalāyana Śrauta Sūtra* (X. 6-7) and the *Śāṅkhāyana Śrauta Sūtra* (XVI. 1-2). It appears that in spite of some variations in both these texts, they mainly depend on the *Śat. Br.* for the content matter. *Sarpavidyā* is referred to in *Āśvalāyana Śrauta Sūtra* as *Viṣavidyā* which is translated as toxicology and serpents and snake-charmers are understood as synonymous terms (*sarpaḥ sarpavida iti*). The aim of this paper is to discuss the scope and extant of *Sarpavidyā* through the Sanskrit texts.

The snake/serpent lore is classified in Sanskrit Literature under three headings

i) References to snakes and their poison

ii) Legends regarding snakes

iii) Toxicology or remedy against snake poison or any kind of poison.

This paper proposes a thesis that mere knowledge if the anatomy of snakes or toxicology is not *Sarpavidyā*, but the knowledge of charming, thereby controlling snakes and overcoming their poison is to be understood as *Sarpavidyā* which is synonymous to *Gāruḍavidyā*. *Viṣaharividyā* or *Viṣavidyā* i.e. toxicology appears to be the offshoot of *Sarpavidyā*[4].

References to *Sarpa*-s in Vedic literature[5]

There are three *Sarpa* seers mentioned in the *RV* related to the hymns praising the Soma-pressing stones (*grāvan*-s). They are *Sarpa* Jaratkarṇa, the son of Irāvata (*RV.* X. 76), Sarpa Arbuda, the son of Kadru (*RV.* X. 96) and Sarpa Ūrdhvagrāvan Arbudi (*RV.* X.175) The *RV* mentions of one more hymn related to the *Sarpa*-s where the deity and the female-seer are one i.e. Sarparājñī. The hymn is also supposed to be attributed to the Sun (Sāyaṇa- *saiva devatā sūryo veti*).

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3. *Śatapatha Brāhmaṇa* XIII.4.39. अथ पञ्चमेऽहन्नेवमेव एवमेवैतास्विष्टिषु संस्थितास्वेषैवावृदर्ध्वविति । ह्वै होतरित्येवाध्वर्युः ।

अर्बुदः काद्रवेयो राजेत्याह तस्य सर्पा विशः । त इम आसत इति ।
सर्पाश्च पर्विदाश्चोपतमेता भवन्ति । तानुपदिशति । सर्पविद्या वेदः सोऽयमिति ।
सर्पविद्यायाः एकं पर्व व्याचक्षाण इवानुद्रवेत् । एवमेवाध्वर्युः संप्रेष्यति ।

4. These three terms are understood as synonymous by Gupta, Natthulal., *Pracina Bharatiya Vidyaein evam Kalaein*, Section II, Chetana Prakashana, Nagpur, 1978, p.160

5. Dange, (Mrs) S.S., 'Sarpas and Vedic Ritual Tradition', *Journal of the Asiatic Society of Mumbai*, Vol. 79 for 2004, (New Series), Mumbai, pub. in 2005, pp. 35-44

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According to Vogel, 'In the *Yajurveda* and especially in the *Atharvaveda* serpent-worship is referred to unambiguously[6].'

The *Mait. Sam.* offers homage to the serpents, which move along the earth, sky and the heaven. They are the brightness of the heaven; they are the rays of the sun, which have made their abodes in the waters (II. 7.15). The *Tait. Sam.* speaks of the brilliance of the serpent obtained by the sacrificier, when the head of a serpent is placed in the first layer of the Great Fire-Altar. A *Yajus* mantra is uttered at this time to appease the serpent, in the absence of which the serpent would injure the animals of the village or of the wild area (V.2.9.5, 6).

The *mantras* from the *Vaj. Sam.* propitiate the serpents which are on the earth, in the air or mid-region, in the luminous sphere of the sky or in the rays of the sun, those of which the abode is in the waters, those which are the darts of the demons, those which are on the trees and whose which lie in the holes (XIII. 6-8). It is interesting to note that the serpents propitiated are both symbolic and physical in nature. According to the *Śat. Br.* these are the *Sarpanāma -mantras*, which are to be recited standing by the golden image of a man, laid on his back on a gold plate in the first layer of the *Agnicayana*, which is the rite of building the Great Fire-altar. It also gives an etiological explanation to this rite. Gods were afraid of their self i.e. Agni in the form of the golden man, which would glide or move away along with the worlds for their selves are the *sarpa*-s (VII. 4. 1. 15-25). Etymologically, the root of the word *Sarpa* is √*sṛp-sarp* - to move, glide way. So the *Sarpanāma mantras* are to make their self steady. Dange comments that though the explanation is given in a metaphorical way to convince, it is rather clumsy.

The *AV* does mention about certain incantations and medicines used as antidote to snake poison. The hymns IV. 6-7 are recited while making the victim of poison drink gruel i.e. *karambha* of sesame(?) as a cure. The water from the river Vāraṇāvatī is said to destroy poison. The seer of both the hymns is Garutman and the deity Takṣaka and plant respectively. Interestingly, the hymns do not mention about snake poison. The *AV* (V.13) mentions various names of snakes like Kairāta, Pṛṣna, Upatrnṛṇya, Tābuva, Alīka, Vilīka, Aligi, Viligi, Urugala, Tastuva, etc.[7] This hymn also mentions Takṣaka, being overpowered by poison. *AV* (VII. 56) refers to four terms which hint at the extant species of snakes viz; *asita* (black) *tiraścirāji* (cross-lined), *svaja* (adder) and *babhru* (brown). The four qualifying

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6. Vogel, J. Ph, *Indian Serpent-lore or the Nagas in Hindu Legend and Art,* Arthur Probsthain, London, 1926, Intro. p.6
7. Siddheshvarshastri, Chitrava, *Atharvavedache Marathi Bhashantara,* Bharatiya Charitrakosha Mandal, Pune, 1972, P.117.

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attributes of snakes are used as proper names in another place in the text. The *AV* (III.27) has conceived these snakes as the guardians of directions (*dikpālas*).

Direction	Deity	Name of the snake
East	Agni	Asita
South	Indra	Tiraścirāji
West	Varuṇa	Pṛdaku
North	Soma	Svaja
Fixed	Viṣṇu	Kalmāṣagrīva
Upward	Bṛhaspati	Svitra

AV (VI.100) mentions the use of *valmīkimṛttikā* i.e. mud from the ant-hill as an amulet used as an antidote against snake poison. In another place, the use of the *madhūka* is mentioned as a remedy (*AV* VII. 56). The hymn XI.9 mentions Arbudi, the snake. According to Sāyaṇācārya, Arbudi is the serpent Arbuda.

The *Aitareya Brāhmaṇa* says that Arbuda, the seer from the *Nāga* dynasty had two offsprings viz., Arbudi and Nyarbudi. It is noteworthy that apart from the hymn (VI. 100 and XI.9) in the other hymn, the seer is Garutman and the deity is Takṣaka. The Garutman-Takṣaka hymns express the power of the seer Garutman exceeding the power of the deity Takṣaka.

The *Taittiriya Brāhmaṇa* also mentions *Sarpavidyā*.[8]

In the *Śatapatha Brāhmaṇa*, the *Pariplava* narration mentions Arbuda Kādraveya, as the king of serpents and the science which he expounds as *Sarpavidyā* as discussed earlier.

The *Sarpavidyā* also occurs in the *Chāndogya Upaniṣad* and is rendered by Śaṅkarācārya as Gāruḍam.[9]

The Epics do not mention about *Sarpavidyā* as such but they have legends which describe origin of snakes, the strife between Garuḍa and the snakes etc. The *Mahābhārata* mentions about number of legends associated with the serpents. The term *Nāga* is used often in the text, but not in the sense of Cobra snake but serpents/serpent-tribe.

8. *Taittirīya Brāhmaṇa*, III.12.8.3. ऋचः यजूंषि सामानि ॥ अथर्वाङ्गिरसश्च ये । सर्वास्ताः । इतिहासपुराणं च । सर्पदेवजनाश्च ये । सर्वास्ताः ।

9. *Chāndogya Upaniṣad*. VII. 1.2. सर्पदेवजनविद्यामेतद्भगवोऽध्येमि । (सर्पविद्या गारुडम् according to Śaṅkarācārya)

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Origin of serpents/ serpent-tribe : During the *Kṛtayuga,* Vinatā and Kadru were the two daughters of Prajāpati, who got married to sage Kaśyapa. Kadru chose to be mother of the powerful *Nāgas.* Vinatā, on the other hand wanted to bear only two sons more powerful than that of Kadru.

Garuḍa legend in the *Mahābhārata* : The relation between Garutman i.e. Garuḍa and that of Takṣaka can be explained through the Garuḍa legend which forms part of the *Āstika Parvan* in the *Ādi Parvaṇ* of the *Mahābhārata* (I.14-30 chapters).

This legend goes with the name of the *Suparṇākhyāna.* Vinatā and Kadru were wives of Kaśyapa, the Prajāpati. Kadru's sons were the serpents/*nāgas.* One day both the wives entered into a wager. Kadru claimed that the tail of Uccaiśravas was black and Vinatā claimed that it was white in colour. The condition of the wager was that the one who was the loser will be the slave of other. Kadru ordered her sons, the serpents to transform themselves into hair as dark as collyrium. Those who refused were cursed by her that in the serpent sacrifice of Janamejaya, fire shall consume them. On hearing this extremely deadly curse Lord Brahman himself, along with the other creatures supported it, seeing the multitude of serpents. These serpents were endowed with deadly poison and being mighty were habituated to bite. On account of their being endowed with deadly poison, and for the welfare of the creatures, Lord Brahman gave the anti-poison lore to Kaśyapa, the sage. Soon Garuḍa was born. On seeing the affliction of his mother, he asked the serpents the means to free his mother from slavery. The serpents asked him to fetch nectar. With great valour, he fetched nectar/Soma. When he was asked by Indra to take a boon, he said, "May the serpents be my food". He handed over nectar to the serpents, which was soon snatched away by Indra.

The *Rāmāyaṇa* mentions a serpent mother named Surasā[10]. She is the daughter of Dakṣa and the snakes who are her offsprings are called Sauraseya•.

Other texts

This story indicates antagonistic relationship between Garuḍa and the snakes, which also gets reflected in certain other Sanskrit texts and also gets expounded through popular beliefs. The *Kāśī Khaṇḍa* of the *Skanda Purāṇa,* mentions Kadru cursing the serpents who

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10. *Rāmāyaṇa: Sundarakāṇḍa* 1. 137
ततो देवाः सगन्धर्वाः सिद्धाश्च परमर्षयः ।
अब्रुवन्सूर्यसंकाशां सुरसां नागमातरम् ॥

• It is noteworty that the names Sauraseya and Kādraveya are metronomes from the words Surasā and Kadru respectively.

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did not abide by her orders to change the tails of the horse, to be the food of Tārkṣya i.e. Garuḍa. In the *Rāmāyaṇa*, Garuḍa comes to the rescue of Rāma, after the later is shot by the serpent darts from Rāvaṇa[11]. In the Sanskrit play *Nāgānanda*, the serpents offer themselves as food to Garuḍa. In the Ceylonese chronicle, the *Mahāvaṁśa*, Saṅghamitrā carrying the branch of the Bodhi tree, assumed the form of the Garuḍa and terrified the serpents practicing magic to win the branch. The Hindu festival *Nāgapañcamī* is celebrated as an anniversary commemorating the victory of Garuḍa over the serpents and on this day, the image of Garuḍa at Cāṅgunārāyaṇa is reported to perspire*.

Why is this element of antagonism dominant in the texts ?

The serpentsa are poisonous creatures, Garuḍa being victorious indicates Garuḍa gaining control over poison. Dange, S.A., comments that 'it can be also seen from the fact that *Garuḍavidyā* is synonymous to *Sarpavidyā*[12]. From the lores mentioned in the *Śāṅkhāyana Śrauta Sūtra*, we know that the Kādraveyas, the people of the Arbudadeśa were taught this lore, which was recited in the *Pāriplava-ākhyāna* during the horse-sacrifice. The commentator of the *Śaṅkhāyana Śrauta Sūtra* renders *Sarpavidyā* as *Garuḍavidyā*. The *Āśvalāyana Śrauta Sūtra* mentions Viṣavidyā in the place of *Sarpavidyā*. This was taught to the *Sarpa-s* that had the knowledge of the *sarpas* (*sarpavidaḥ*). This clearly indicates that the *sarpas* are snake-charmers. It appears that the texts make a clear distinciton between the ordinary *sarpa-s* and *Sarpavidaḥ*.

Nārāyaṇa, the commentator on the *Āśvalāyana Śrauta Sūtra* renders the word *Sarpavidaḥ* as the knowers of the science of poison i.e. *Agadatantara* or Toxicology. This indicates that the word *Sarpavidyā* was not restricted to the poison of merely snakes but to any kind of poison.

Dange analyses the traditional antagonism between the snakes and Garuḍa. The legend of Garuḍa is an indication to the class rivalry hinting at the original superiority of the serpents and the Garuḍa and the Garuḍas being criticized as inferior to the former,

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11. *Rāmāyaṇa: Yuddhakāṇḍa* 50. 36-37
ततो मुहूर्तादुरुडं वैनतेयं महाबलम् ।
वानरा ददृशुः सर्वे ज्वलन्तमिव पावकम् ॥
तमागतमभिप्रेक्ष्य नागास्ते विप्रदुद्रुवुः ।
यैस्तु तौ पुरुषौ बद्धौ शरभूतैर्महाबलैः ॥

* These references are incorporated from the *Myths and Legends of the Mahābhārata* by Dr. S.A. Dange.

12. Dange, S.A., *Myths from the Mahābhārata: Quest for Immortality*, Vol. I revised edition, Aryan Books International, New Delhi, 2001, p.117-118

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probably because of the latter's posing as superior to their tribe-members by the virtue of their possessing unique power i.e. *Garuḍavidyā* and menacing their tribesmen (*nāgas*) by superior magical powers, the promotion of a new symbol of worship i.e. Garuḍa.

***Sarpasatra* in the *Mahābhārata* :** *Sarpasatra* is prominent in the *Mahābhārata* for the first public narration of the *Mahābhārata* took place in this sacrifice. This sacrifice was performed for the destruction of the *Sarpas*. Those specialized in the performance of *Sarpasatra* were appointed as the chief officiating priests. The *Sarpas* thought of various ways and means of destroying this sacrifice. However, their efforts were futile. All the *yājakas* (officiating priests) wore black garments. Sage Vyāsa and his disciples were *sadasyas* in this sacrifice. Many serpents were destroyed in this sacrifice.

The *Brāhmaṇa* literature and Śrautasūtras also mention *Sarpasatra*. The *Tāṇḍya Mahābrāhmaṇa* says, 'An overnight rite (*Atirātra*) at the beginning and the end of the year consists through tens and tens, only the middle day (the Viṣuvat) is twelve-versed: at the middle day, the *sāmans* of the serpents are applied. Through this (rite), the serpents gained a firm support in these worlds. The priests mentioned in the same are as follows (XXV. 15.1-4).

Position of priests	Name of the sage
Gṛhapati	Jarvara
Brahman	Dhṛtarāṣṭra
Udgātṛ	Janamejaya
Brāhmaṇācchaṁsin	Pṛthuśravas
Grāvastut	Arbuda Kādraveya

The text enumerates in details the names of different Sarpas. It is said that through this rite, the serpents vanquished death.

***Sarpavidyā* as expounded in *Purāṇas* :**

The *Purāṇas* mention various myths and legends regarding serpents. At the same time they have recorded some knowledge of snakes and snake poison. According to the *Liṅga Purāṇa*, when Brahman had the desire to create he could not, so tears rolled from his eyes. They are the serpents with *kapha, vāta* and *pitta*. Some of them were long-haired having deadly poison (I.22.17-21).

The *Agni Purāṇa*, in the chapter on *Sarpalakṣaṇa* states about the conception of

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serpents which takes place in three months starting from *Āṣāḍha*[13]. Foetus develops in the next four months and at the end of that period 240 eggs are produced. A serpent is said to gain consciousness after twelve days of birth. It gains teeth when it sees the sun (i.e. when it gains the sight and sees the sun) within twenty days. Out of the 32 teeth, there are four fangs - *Karālī, Makarī, Kālaratrī* and *Yamadūtikā*. These four fangs are poisonous and are located on the right and the left. The serpent leaves off its slough in 6 months and lives for a hundred and twenty years. It is said to have four *varṇas* corresponding to those of the human beings[14].

The *Garuḍa Purāṇa* mentions different ways of diagnosing poison. It classifies poison as vegetable poison and animal poison. According to this *Purāṇa*, fever, tooth edge, hiccough, pain in the throat, vomiting of frothy mucous, dyspnoea, epileptic fits and marked repungence for all kinds of food are the symptoms which generally walk in the trail of animal poison. The text classifies venomous serpents in three different groups such as the *bhogīs* (hooded ones), *maṇḍalis-* (spotted with rings marked on their bodies) and *rājilas* (marked with stripes). The bite by the serpent of the *bhogī* species imparts a black tint to the skin of the bitten part and the specific symptoms of deranged *vāta* begin to manifest themselves in succession. A bite by a snake of the *maṇḍalī* species gives a yellow tint to the space about the punctures made by its fangs, which becomes soft and marked by a burning sensation in its inside and other specific symptoms of the deranged *pitta* are found to supervene. Likewise, a bite by a snake of the *rājila* species imparts a grayish tint to the site of the wound, which becomes hard, glossy and slimy, the blood discharged from the punctures being found to be exceedingly thick. Symptoms peculiar to the deranged *kapha* are moreover exhibited in cases of bites by *rājila* snakes (*Garuḍa Purāṇa* I. 191.2-24 *c.f. Suśruta Saṁhitā* 4.9-12).

The *Caraka Saṁhitā* mentions a mythical account of the creation of serpents[15]. The *Suśruta Saṁhitā* also gives a mythical account of the creation of poison. When the creator Brahman was creating this universe, the demon Kaiṭabha created obstacles. Anger of Lord Brahman got manifest into a human form, which filled this demon. This anger then started increasing. Seeing this, gods felt dejected (*viṣāda*), hence it is called *viṣa*. Then Lord Brahman distributed this poison amongst immobile and mobile beings (*Suśruta Saṁhitā*

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13. *Agnipurāṇa* : 294.9. आषाढादित्रिमासैः स्याद्गर्भो मासचतुष्टये । अण्डकानां शते द्वे च चत्वारिंशत्प्रसूयते ।

14. *Ibid.* : 294.4b-6. फणिमण्डलिराजलिवातपित्तकफात्मकाः ॥ व्यन्तरा दोषमिश्रास्ते सर्पा दर्वीकराः स्मृता । स्थाङ्गलाङ्गलच्छत्र स्वस्तिकाङ्कुशधारिणः ॥ गोनासा मन्दगा दीर्घा मण्डलैर्विविधैश्चिताः । राजिलाश्चित्रिताः स्निग्धास्तिर्य्यगूर्ध्वं च वाजिभिः ॥

15. *Caraka Saṁhitā : Cikitsāsthāna* 23.4-5. अमृतार्थं समुद्रे तु मथ्यमाने सुरासुरैः । जज्ञे प्रगमृतोत्पत्तेः पुरुषो घोरदर्शनः ॥ दीप्ततेजाश्चतुर्दंष्ट्रः सरिकेशोऽनलेक्षणः । जगद्विषण्णं तं दृष्ट्वा तेनासौ विषसंज्ञितः ॥

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Kalpa 3. 18-22). The *Suśruta Saṁhitā* also mentions about the fatality of snake-bite. A bite by a snake at the root of an *Aśvattha* tree, or in a temple or at a cremation ground, or near an anthill or at the crossing of two roads or in the evening under the influence of the asterisms viz; *Bharaṇī, Ārdrā, Āśleṣā, Maghā* and *Mūlā* invariably proves fatal. Poisons of hooded serpents prove fatal. Heat enhances the virulence of all kinds of poisons. Persons bitten by snakes in whose bodies an incision fails to draw any blood, is not followed by bleeding or stokes of lashes do not leave any marks on the skin or to whom sprays of cold water do not produce any horripulation should be abandoned as already in the clutches of death. Similarly four fangs on site of bite as well as loss of voice, inability to walk or loss of the power of locomotion blackness of complexion and bending of the nose are symptoms, which portend impending evil in cases of snake bite (*Suśruta Saṁhitā Saṁhitākalpa* 3.25-44). Similar thoughts are expressed in the *Caraka Saṁhitā* (*Cikitsāsthāna* 23.18-23).

The *Garuḍa Purāṇa* in the above mentioned chapters recommends certain recipes to be taken as measures against serpent bites and prevention of serpent bites.

- Serpents leave the house of him who takes *Punarnava* roots pasted with water under the auspices of the constellation of *Puṣya.*
- He, who carries an image of Garuḍa, made of bear's teeth on his person remains invisible to snakes all through his life.
- Serpents avoid the presence of one who takes *Śālmali* roots pasted with water under the auspices of the constellation *Puṣya.*
- By tying *Lajjāluka* roots round his hands or by smearing them with paste of the same, a man is enabled to catch hold of snakes without anywise imperiling his life.

In this *Purāṇa,* Dhanvantrī discloses to Suśruta, the *Gāruḍam* as expounded by Sumitra to *Kaśyapa*[16]. This *Gāruḍam* tends to neutrialize the effects of all kinds of poison. The five great elements should be regarding as the presiding deities of the occult diagram to be mediated upon at the time of its *dhyāna.* This occult procedure involves the worship of the great serpents viz; Vāsuki, Śaṅkhapāla, Karkoṭa and Padmanābha, Kālika, Takṣaka and Mahājvaka. This rite involves the feet, pinions and bills of Garuḍa to be contemplated as ornamented with rings of black snakes. This figure should be invariably mediated upon in cases of poisoning with any animal or vegetable poison. For the destruction of snakes, he should contemplate the image of Garuḍa[17]. The performer himself would become Garuḍa[18].

16. *Garuḍa Purāṇa* : I.197.1. गारुडं संप्रवक्ष्यामि गरुडेन ह्युदीरितम् । कश्यपाय सुमित्रेण विषहृद्येन गारुडः ॥

17. *Ibid.* : I. 191.2. तार्क्ष्यमूर्तिं वहेद्यो वै भल्लूकदन्तनिर्मिताम् ।
सपन्नगैर्न दृश्यते यावज्जीवं वृषध्वज ॥

18. *Ibid.* : I. 197.54 ab : नरो वै गरुडायते ।

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The *Agni Purāṇa* also quotes certain *mantras* as the *Tārkṣya mantras*. One *mantra* invokes to Rudra to counteract poison. Here Rudra is understood as Pakṣī-rudra[19].

Thus the *Purāṇas* understand *Sarpavidyā* as the science of serpents as well as the science of snake poison.

References in *Kauṭilya Arthaśāstra* :

In the fourteenth book of the *Kauṭilya Arthaśāstra* we come across groups of poisons like *Kālakūṭa* and others used for poisoning the army of the enemies. This section discusses various recipes of poisons:

- If one dries up with the mixture of any insect boiled together with the black serpent and *priyaṅgu* would cause immediate death.
- The slough of the serpent, the dung of the cow and the horse and the head of a blind reptile make a blinding smoke.
- A mixture of the dung of a white cock and a boa is a means of making white.

Counter measure mentioned against poisoning of troops are as follows :

- Washing water, mixed with a decoction of *śleṣmātaka, kapittha, dantī, dantaṣaṭha gojī, śirīṣa, paṭalī, bala, syonāga, punarnava* and *śvetavarṇa* and mixed with sandalwood and the blood of a female hyena, is an antidote against the poisoning of the army.
- A pill made up of *priyaṅgu, mañjiṣṭhī, tagara* and *puṣpavandaka* and of *aśvattha* growing on moist soil, removes the evil effects of all poisons.
- A sound of drums, smeared with the abovementioned ingredients destroy poison, by looking at a flag or a banner smeared with these one becomes free from poison. (*Kauṭilya Arthaśāstra* XIV. 4. 1-14).

***Sarpavidyā* as a Science of Poison:**

Indian toxicology as mentioned in the *Suśruta* and *Caraka Saṁhitās* of the *Āyurveda* broadly classify poison into two categories viz; immobile and the mobile i.e. *sthāvara* and *jaṅgama*. Immobile poisoning is caused by the consumption of parts of poisonous plants or meat. Mobile poison is the poison of moving creatures like serpents etc. According to the *Kaśyapa Saṁhitā*, Kaśyapa, Uśanas and Bṛhaspati are the preceptors of this science,

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19. *Agni Purāṇa* 295.4 ॐ नमो भगवते रुद्राय छिन्द छिन्द विषम्, ज्वलित परशुपाणये च ॐ नमः पक्षिराजाय ।

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whereas Ālambāyana and Dāruvāha are understood as experts in this science. The text also refers to Dāruvāha who learnt *Sarpavidyā* from Ātreya Punarvasu[20].

Both these texts discuss the characteristics of persons bitten by serpents belonging to the three genders. The texts also discuss the symptoms of persons bitten by serpents of the three categories. They also describe eight stages of poisoning and the remedies during each stage.

Stage	Symptoms	Therapy
1.	Thirst, stupor, setting the teeth on the edge, ptyalism, vomiting and prostration	Protection of heart, consumption of honey, ghee, marrow, milk, red ochre or juice of cow dung
2.	Discolouration, giddiness, tremors, fainting, ostentation, tingling pain in the body and asthama	Boiled sugarcane juice, meat juice squeezed out of crow's flesh or the blood of the goat and other animals of that group or ash or earth
3.	Burning, pruritus, edema and wheals	Alkaline antidotes and repulsive drugs that are curative of edema with honey and ghee
4.	Burning, vomiting, body-ache and fainting	Juice of cow dung mixed with wood apple, honey and ghee
5.	Darkness of vision and vision of various colours	Eye-salve and nasal medication prepared witht the juice of sword near and black
6.	Hiccup	Resuscitation
7.	Paralysis of the muscles	Potion of vegetable poison in case of poisonous bites and bites by poisonous animals in case of vegetable poison
8.	Apparently dead	Palāsa seeds mixed with double in quantity of peacock's bile

The *Caraka Saṁhitā* mentions following therapies to cure poison: i) incantation, ii) amulet, iii) excision, iv) compression, v) suction, vi) cauterization by heat, vii) affusion, viii) bath, ix) depletion, x) emesis, xi) purgation, xii) scalp incision (*upādhāna*), xiii) protection of the heart, xiv) eye-medication, xv) nasal medication, xvi) inhalation, xvii) linctuses, xviii) sedative medication, xix) alkaline applications, xx) counter poison, xxi) resuscitation, xxii) external application and xxiii) reanimation. (*Caraka Saṁhitā Cikitsāsthāna* 23. 35-37)

20. Gupta, Nathulal *op. cit.* p.160 - उपास्यमानमृषिभिः कश्यपं वृद्धजीवकः । चोदितो दारुवाहेन वेदनार्थेऽभ्य-चोदयत् ॥

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Sarpavidyā in the present context

In a tropical country like India, the annual mortality rate is 10,000 due to snakebites[21]. The method adopted to cure snakebite is the antidote of venom. In India at the Haffine Institute, the anti-snake venom serum is prepared by hyper-immunizing horses against the venoms of the four common poisonous snakes: i) Cobra, ii) Common Krait, iii) Russell's Viper and vi) Saw-scaled viper. The first-aid treatment involves:

a) Legation: A ligature of some type should be tied a little above the bitten part.

b) Incision : Apart retarding the absorption of poison, the fang wounds should be opened by cross incisions.

c) Suction: Drainage of blood and lymph from the cuts should be induced by suction.

d) Caution : Incision is washed by a weak solution of potassium permanganate[22].

India exhibits one of the highest mortality rates due to snakebites. This high mortality rate is due to the blind faiths associated with the serpents and also due to lack to availability of proper medical treatment.

Some thoughts on how the ancient knowledge disappeared

The *Śat. Br.* mentions Arbuda Kādraveya as the king of serpents and his lore is the serpent lore. This narration used to take place in the sacrificial sessions of the *Aśvamedha* by *Hotṛ*. The *Hotṛ* might know the language of this serpent lore or might be that some person belonging to this lore attended the sacrificial session and took part in this narration. The great sacrifices were in the form of a gathering of all the sections of the society in which Arbuda Kādraveya and his fellowmen the serpents participated. This is also an indication of the assimilation and integration of the serpent tribe in the Vedic fold. As the institution of the sacrifice receded, the frequency of such gatherings reduced which affected adversely on the interaction between the different sections of the society. The *Sarpavidyā*, which used to be discussed in these sessions, became restricted to the serpent tribe only. This is one of the reasons why this lore did not develop into a system of science. Incantations, charms and amulets were veiled under the cover of occult procedures and could not be experimented. As this knowledge was restricted to a particular tribe, it passed on to the knowledge to the members of that particular tribe only, making it more and more inaccessible.

There are tribes existing in India, which are associated with snake charming and

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21. Indramani Jena, Akulananda Sarang, *Snakes of Medical Importance and Sanke-bite Treatment*, Ashish Publishing House, New Delhi, 1993, Chap. 3, pp. 99, Table 3.2
22. Deoras, P. J., *op.cit*, Chap. III, pp.50-53

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which claim to be carriers of knowledge. Unfortunately, the ethnography of these tribes is unknown. Moreover, the knowledge, which they have, is dismissed and neglected as blind faith.

Conclusion :

The above mapping of the *Sarpavidyā* shows that ancient texts have not stuck only with discussing the mysticism associated with serpents but have gone ahead and discussed some of the most important scientific issues associated with maintaining and controlling actions and reactions of serpents. This example shows that *vidyā* as a term not only covered abstraction or mysticism associated with issues, but also dealt with the scientific dimensions of abstractions and reality.

The mapping also shows that although this faculty of analysis has developed, the carriers of this knowledge, which have predominantly been tribes, are being pushed back as being irrelevant. Changing notions towards animal safety and towards modernism could be some of the reasons for this phenomenon to occur. A thorough study of these tribes and their knowledge has the potential to contribute to ophidialogy i.e. the science of serpents.

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BHAVABHŪTI-CITATIONS IN THE *RASĀRṆAVASUDHĀKARA*•

RABINDRA KUMAR PANDA*

Introduction:

The *Rasārṇavasudhākara* (RS) of Siṁhabhūpāla-II (1450 A.D.) is an important work on Sanskrit dramaturgy. It is notable more for its completeness than for its incisiveness. The author takes inspiration from the *Bhāvaprakāśana* of Śāradātanaya and the *Śṛṅgāraprakāśa* of Bhoja. The work deals with several topics of dramaturgy with simple definitions and copious illustrations. The topics dealt with include the types of heroes, heroines, their companions, assistants, styles, *vṛttis, pravṛttis, sāttvika* and *sañcāribhāvas,* construction and arrangement of the plot of a drama, five *sandhis, sandhyaṅgas, sandhyantaras, bhūṣaṇas,* subject - matter of *rūpakas,* various types of expressions used conventionally in naming and addressing different characters and different languages used in a drama. The author has explicated them nicely with appropriate illustrations carefully collected from numerous literary works. No doubt, he has made commendable effort in selecting the verses from the standard works of poets as well as dramatists. He has also included some of his own verses. As is evidently clear from the number of the citations, the author has made a critical survey of the significant literary works. Siṁhabhūpāla's selection clearly reflects his acumen, discerning power, intelligent planning and profound study of the texts. The RS contains in all 554 verses cited as illustrations[1]. Not only the number but the reasons for which Siṁhabhūpāla has selected these verses are also worth knowing. The citations are useful for understanding the hidden significance of the particular verses from the perspective of dramaturgy. Such a study is necessary for discerning subtle aesthetic beauty in general and dramatic significance of the verses of Bhavabhūti in particular.

A study of Bhavabhūti-citations available in the RS is presented in this paper. The plays are presented in the chronological order and the verses in the order they actually occur in the editions of the plays available to me. The English translations of the verses

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* Department of Sanskrit, Pali & Prakrit, The M.S. University of Baroda, Vadodara.

1. Vijayan, K., *Rasārṇavasudhākara : A Study,* p.30

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taken from the Editions of *Mālatīmādhava and Uttararāmacarita* by M.R. Kale and *Mahāvīracarita* by R.R. Ambardekar are also given so that a reader may not be in trouble to grasp the meaning.

From the investigation it is known that there are 37 verse-citations in the RS, which are taken from three plays of Bhavabhūti. Six verses are from the *Mahāvīracarita* (MVC), twenty verses from the *Mālatīmādhava* (MM), and eleven verses from the *Uttararāmacarita* (URC). Besides these verses, some prose passages are also cited.

MAHĀVĪRACARITA

1. Siṁhabhūpāla cites the first verse of the MVC.

अथ स्वस्थाय देवाय नित्याय हतपाप्मने ।
त्यक्तक्रमविभागाय चैतन्यज्योतिषे नमः ॥ (MVC I.1 ; RS. p.392)

(In the beginning I salute the consciousness-light who is Self-existent, eternal, destroyer of sins and who has no division.)

The word *pada* or foot which is the unit of measure for *nāndī* is defined in different ways by the scholars. Generally the word 'foot' is understood as 'a metrical foot'. Bharata is silent on this point but the author of the *Nāṭyapradīpa* has put together the different views in his oft-quoted couplet which states: "Some say that one quarter of a verse is the measure of a foot, others say that a grammatical word ending in a nominal or verbal suffix makes a foot, while there are others who believe that the different clauses in the verse constitute the feet of *nāndī*". Further, *nāndī* is said to be of two kinds. It can either be simple or suggestive. Again, it is simple as there is a salutation to Brahman, and at the same time is suggestive as it hints at the subject-matter of the play. The word *devāya* in the *nāndī* verse may be taken as referring to Rāma; *hatapāpmane* hinting at the killing of Vālin and Rāvaṇa etc. by Rāma, and by this the main sentiment viz., *vīra-rasa* is also suggested. Vīrarāghava takes the other words of the verse as applying to Rāma. Thus, he explains *caitanyajyotiṣe* and *tyaktakramavibhāgāya* as hinting at the popularity and extraordinary strength of Rāma beyond his years with the help of which he conquers Paraśurāma.

He explains the word *devāya* as referring to Rāma's sport with *Sītā*. Thus he has tried to come to the subject-matter of the play by the words and their meaning.

The above is an example of *Aṣṭapadānvitā-nāndī*. It contains eight *padas* (syntactical words). It is interesting to note that Todar Mall says that this verse contains a salutation to Brahmā[2]. But P.V. Kane refutes his view and rightly observes: It "does not appear to

2. Introduction P. XXIV to the edition of *Mahāvīracarita* brought out by Mac Donell.

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be right when he says that this verse contains a salutation to Brahmā[3].

2. Siṁhabhūpāla cites the following verse:

उत्पत्तिर्देवयजनाद् ब्रह्मवादी नृपः पिता ।
सुप्रसन्नोज्ज्वला मूर्तिरस्यां स्नेहं करोति मे ॥ (MVC I.21 ; RS. p.212)

(Her birth is from the God's place of sacrifice, her father is a king who recites the Vedas; she has an extremely pleasing and bright form. I, therefore, feel affection for her.)

The verse is cited as an example of *rati* caused by *saṁsarga*[4]. The reading in the citation is given as *asyāṁ* in place of *asyāḥ*. This verse is cited in the *Sarasvatīkaṇṭhābharaṇa* v.168 (p.526) to illustrate *Paṭu saṁskāra* and V.169 (p.584) to illustrate *cākṣuṣa-prīti* as conducive to *premapuṣṭi*. It is cited by Śāradātanaya in his *Bhāvaprakāśana* (p.280) and Rudrabhaṭṭa in his *Rasakalikā* (p.66).

3. साधारण्यान्निरातङ्कः कन्यामन्योऽपि याचते ।
किं पुनर्जगतां जेता प्रपौत्रः परमेष्ठिनः ॥ (MVC I.31 ; RS. p.248)

(Rāma says to Lakṣmaṇa- "Dear brother, on account of her unmarried state, any one without fear may demand the maiden- less said the better about the conqueror of worlds, the great grandson of Brahmā" (Parameṣṭhī)".

This verse is given as an example of *sthāyitva* of *mati*, a quality of *Dhīroddhata - nāyaka*. Siṁhabhūpāla classifies the heroes into four types, viz. *Dhīrodātta, Dhīralalita, Dhīraśānta,* and *Dhīroddhata.* Bhārgava (Paraśurāma) is said to be a hero of *Dhīroddhata* type.

This verse is cited by Bhoja in his *Sarasvatīkaṇṭhābharaṇa* v.167 to illustrate *udāttarasa.*

4. सोऽयं त्रिःसप्तवारानविकलविहितक्षत्रतन्तुप्रमारो
वीरः क्रौञ्चस्य भेदी कृतधरणितलापूर्वहंसावतारः ।
जेता हेरम्बभृङ्गिप्रमुखगणचमूचक्रिणस्तारकारे -
स्त्वां पृच्छन् जामदग्न्यः स्वगुरुहरधनुर्भङ्गरोषादुपैति ॥ (MVC II.17 ; RS. pp.26-27)

(The same hero, the son of Jamadagni (Paraśurāma) who destroyed twenty one times the entire race of warriors and who by dividing the Krauñca mountain for making a new passage opened for swans to descend to India, who is the conqueror of the enemy of Tāraka, followed by groups of divine warriors, headed by Heramba and Bhṛṅgī, is coming

3. Kane, P.V., *Uttararāmacarita,* Introduction, P.X.

4. अत्र देवयजनजनकादिसंबन्धगौरवेण सीतायां रामस्य रतिः । RS. p.212

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searching for you, through anger, on account of breaking the bow of Lord Śiva, his preceptor.

The verse is cited as an example of *tejasvitā* which is a quality of *Dhīroddhata* type of hero. Some writers accept it as an example of *vīrarasa* which is suggested in the speech of Jamadagni.

5. Siṁhabhūpāla cites the verse :

न त्रस्तं यदि नाम भूतकरुणासन्तानशान्तात्मन-
स्तेन व्यारुजता धनुर्भगवतो देवाद् भवानीपतेः ।
तत्पुत्रस्तु मदान्धतारकवधाद् विश्वस्य दत्तोत्सवः
स्कन्दः स्कन्द इव प्रियोऽहमथ वा शिष्यः कथं विस्मृतः ॥ (MVC II.28 ; RS. p.31)

(If he was not indeed, afraid of the revered God, the husband of Bhavānī, whose soul is calm with the greatness of mercy towards all creatures, when he broke his bow how did he not remember his son Skanda who gave joy to the world by killing the demon Tāraka by pride or me, his disciple, dear as Skanda.)

It is cited as an example of *Dhīroddhata- nāyaka.* in KP[5]. KPD[6].

6. हा वत्साः खरदूषणप्रभृतयो वध्याः स्थ पापस्य मे ।
हा हा वत्स विभीषण त्वमपि मे कार्येण हेयः स्थितः ।
हा मद्वत्सल वत्स रावण महत् पश्यामि ते संकटं
वत्से केकसि हा हतासि न चिरात् त्रीन् पुत्रकान् पश्यसि ॥ (MVC IV.17 ; RS. p.114)

(Alas ! Khara, Dūṣaṇa and others my children, sinner as I am, you must be killed. Alas my child Bibhīṣaṇa, you too must be for the sake of my interest. Alas, my dear child, Rāvaṇa, I anticipate a great disaster for you, Alas, my daughter, Kaikayī, you are doomed, you will not see your three sons for a long time.)

The verse is cited as an example of *saṁghātya*[7] which is a part of *Sāttvativṛtti.* In this verse Mālyavān's power to break the unity of Khara, Dūṣaṇa and Triśirā by means of his divine power is described. This verse is cited by Bhoja in the *Sarasvatīkaṇṭhābharaṇa* for pīṭhamarda and Śāradātanaya in the *Bhāvaprakāśana.*

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5. क्वचिद्विवक्षितविशेषपरत्वे पदवैयर्थ्याप्रसङ्गेनाविवक्षितविशेषपरत्वग्रहात् ।
यथा-अत्र भवस्य पत्नीत्यर्थे भवानीति सिद्धम् । KP. p.186

6. अत्र भवस्य पत्नीत्यर्थे भवानीति सिद्धम् । तथा च भवपत्नीपतौ प्रतीयमाने भवातिरिक्तः स द्राक्प्रतीयते ।
नहि भव एवाभिधेये भवपत्नीपतिरिति प्रयोगो योग्यः सचेतसाम् । *Kāvyapradīpa*, p.186

7. दैवशक्त्या यथा महावीरचरिते माल्यवान् ।
अत्र राघवानुकूलदैवमोहितेन माल्यवता खरदूषणत्रिशिरसां भेदः संविहित इति संघात्यः ।RS. p.114

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II. *MĀLATĪMĀDHAVA*

7. ये नाम केचिदिह नः प्रथयन्त्यवज्ञां
जानन्ति ते किमपि तान् प्रति नैष यत्नः ।
उत्पत्स्यतेऽस्ति मम कोऽपि समानधर्मा
कालो ह्ययं निरवधिर्विपुला च पृथ्वी ॥ (MM II.6 ; RS. pp.395-396)

(Those who regard me with disdain claim they know a little. I don't make efforts for their sake. There will appear in the future a man who is my equal in wrath or, perhaps, even today somewhere there lives such a man, for time is endless and the world is vast.)

This verse suggests that during his lifetime Bhavabhūti did not receive due recognition of his poetic genius. He was not pleased with the reception of his preceding works and therefore he gives expression to his diasppointment.

It is said that the *Sūtradhāra* must introduce the play after the completion of *Nāndī*. He has to resort to *Bhāratīvṛtti* for introducing the play, which consists of four elements viz. *Prarocanā* (propitiation), *āmukha* (insertion), *vīthi-* (avenue) and *prahasana* (humour). *Prarocanā* is a favourable description of the heroes, the authors, spectators or the actors as suited to the representation. Among them, the authors of plays are of four types viz., *udātta* (noble), *uddhata* (haughty), *prauḍha,* (proud) and *vinīta* (modest). *Uddhata* expresses his self-conceit when he refers to himself. The well-known stanza of Bhavabhūti who criticizes certain men of letters and declares that an equal to him is yet to be born is cited by Siṁhabhūpāla as an example of *Uddhata-kavi* [8]. However, Amṛtānanda cites this verse as an example of *saṁbhava-pramāṇa,* in the *Alaṁkārasaṁgraha* (p.60). This verse is cited by Mammaṭa[9], Govinda Ṭhakkura[10], Mahimabhaṭṭa[11], Alaṁkāramahodadhikāra[12] and Hemacandra[13].

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8. अत्र जानन्ति ते किमपीति परापवादान् मम तु कोऽपि समानधर्मेत्यात्मोत्कर्षकथनाच्च भवभूतेरुद्धतत्वम् । *Ibid.* p.396
9. अत्र य उत्पत्स्यते, तं प्रतीति । एवञ्च तच्छब्दानुपादानेऽत्र साकाङ्क्षत्वं प्रसिद्धम् । न चासाविति तच्छब्दार्थमाह । KP. p.226
10. द्वयोरप्यनुपादानेऽप्यार्थो यत्तदोः संबन्धः । यथा-अत्र य उत्पत्स्यतेऽस्ति वा मम समानधर्मा तं प्रति यत्न इति स्फुटमेवावगम्यते । यथाश्रुते हि न पूर्वार्धेन कथमप्यन्वयः । *Kāvyapradīpa,* p.196
11. केचित् पुनरुपात्तवस्तुविषयतयोपकल्पितयोर्द्वयोरप्याक्षेपादस्य चतुर्थमपि प्रकारमिच्छन्ति । यथा-अत्र स कोऽप्युत्पत्स्यते यं प्रति यत्नो मे सफलीभविष्यतीत्युभयोरपि तयोरर्थादाक्षेपः । *Vyaktiviveka,* p.200
12. अनुपात्तमपि सामर्थ्याद् द्वयमपि गम्यते । अत्र यः कोऽप्युत्पत्स्यते तमेव प्रति ममैष यत्न इत्युभयोरव्यर्थाद् गम्यत्वम् । *Alaṁkāramahodadhi,* p.151
13. क्वचिदनुपात्तमपि द्वयं सामर्थ्याद् गम्यते । अत्र स कोऽप्युत्पत्स्यते यं प्रति यत्नो मे सफलो भविष्यतीत्युभयोरपि अर्थादाक्षेपः । *Kāvyānuśāsana,* p.247

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8. बहिः सर्वाकारप्रवणरमणीयं व्यवहरन्
पराभ्यूहस्थानान्यपि तनुतराणि स्थगयति ।
जनं विद्वानेकः सकलमतिसंधाय कपटै-
स्तटस्थः स्वानर्थान् घटयति च मौनं च भजते ॥ (MM I.14 ; RS.pp.184)

(A clever man, outwardly acting in an extremely pleasant manner and to all appearances, covers even the minutest points that might give to others a clue to his plans; and remaining indifferent and overreaching all the people by his devices, encompasses his own ends, single-handed, and observe silence.)

The verse is cited as an example of *Avahitthā* which is a *vyabhicaribhāva*. It is the concealment of appearance owing to deceitfulness, dignity, political contrivance, shyness, fear, politeness, courage or defeat. The representation of *Avahitthā* is effected by means of speaking as another person, pretending valour, looking somewhere else, tumbling in speech etc.

9. गमनमलसं शून्या दृष्टिः शरीरमसौष्ठवं
श्वसितमधिकं किं न्येतत् स्यात् किमन्यदितोऽथ वा ।
भ्रमति भुवने कन्दर्पाज्ञा विकारि च यौवनं
ललितमधुरास्ते ते भावाः क्षिपन्ति च धीरताम् ॥ (MM I.17 ; RS. p.188)

(His gait is slow; his look vacant, his frame is not in good trim and breathing accelerated. What may this be ? Or what else can it be ? The command of the God of love wanders over the world; youth is susceptible and the various objects which are charming and sweet shake off the firmness of mind.)

It is an example of *Vitarka*[14], which is a *vyabhicāribhāva*. It is defined as a deliberation occasioned by doubt, anxiety etc. Whether something is correct or not, is decided by *vitarka*. As it is defined in the Nyāyaśāstra, *Tarka śaṅkānivartaka*. Rising of the eyebrows and nodding of the head are the gestures in representing *Vitarka*. However, the *Daśarūpaka*[15] and *Alaṁkārasaṁgraha* cite this verse as an example of *narmasphoṭa*. The commentator of MM is of the view that *gamana* suggests *ālasya*, a *vyabhicāribhāva* and *dṛṣṭi* suggests *cintā* - another *vyabhicāribhāva* of *vipralambha-śṛṅgāra*. The verse also contains *samuccaya- alaṁkāra*. This verse is cited by Viśvanātha[16] and Śāradātanaya[17].

14. अत्र माधवगतां चिन्तामुपालभ्य किमत्र कारणमिति विमृशता मकरन्देन मन्मथनिबन्धन एवायं भाव इति सत्यनिर्णयान्तो वितर्कः । RS. p.188

15. इत्यत्र गमनादिभिर्भावलेशैर्माधवस्य मालत्यामनुरागः स्तोकः प्रकाश्यते । *Daśarūpaka*, p.126

16. अलसगमनादिभिर्भावलेशैर्माधवस्य मालत्यामनुरागः स्तोकः प्रकाशितः । *Sāhityadarpaṇa*, p.282

17. 'गमनमलसं शून्या दृष्टि'रित्यादि अत्र सञ्चारिण एव वाक्यार्थः । *Bhāvaprakāśana*, p.306

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10. या कौमुदी नयनयोर्भवतः सुजन्मा
तस्या भवानपि मनोरथलब्धबन्धुः ।
तत् संगमं प्रति सखे न हि संशयोऽस्ति
यस्मिन् विधिश्च मदनश्च कृताभियोगः ॥ (MM I.34 ; RS. p.377)

(It is you too, of noble extraction, are the object of the desire of her who is the moon-light to your eyes; therefore, oh friend, there is no doubt to your union, in which both, fate and the God of love, exerting themselves.)

Siṁhabhūpāla cites the above verse as an example of *Vicāra*[18]. Here it is interesting to say that thirty six characteristics of poetry mentioned by Bharata in his *Nāṭyaśāstra* under the name of *Lakṣaṇas* are variously understood by the poeticians. Daṇḍī and Dhanañjaya (*Kāvyādarśa,* II.366 ; *Daśarūpaka* IV. 84) take them under *alaṁkāras.* But Bhoja, Śāradātanaya, Viśvanātha and Siṁhabhūpāla speak of them in connection with *nāṭakas.* Siṁhabhūpāla prefers to call them by the term *Bhūṣaṇa.* It is a speech wherein there is a combination of abundant excellences and poetic embellishment. *Vicāra* is the elaboration of various means in gaining an object. The words of Makaranda in MM consoling Mādhava contain *vicāra.* Makaranda says that the union of the lovers is to take place since Malatī and Mādhava love each other and there is a compelling force of fate and lust (Madana). However, Bharata defines *Vicāra* differently. When inference perceive eliminating possible errors, is found consistent with the meaning already expressed, there occurs *vicāra.*

11. वारं वारं तिरयति दृशावुद्गतो बाष्पपूर-
स्तत्संकल्पोपहितजडिमस्तम्भमभ्येति गात्रम् ।
सद्यः स्विद्यन्नयमविरतोत्कम्पलोलाङ्गुलीकः
पाणिर्लेखाविधिषु नितरां वर्तते किं करोमि ॥ (MM I.35 ; RS. p.151 ; 206)

(It is the flood of tears again and again obstructs the function of my eyes: my body becomes paralysed owing to the dullness brought on by my picturing her in my mind; and when I proceed to paint her, this my hand, at once perspiring, has its fingers excessively shaking on account of incessant tremor. What can I do ?)

Siṁhabhūpāla cites this verse as an example of *Viṣāda*[19] which is understood from an expression having heavy sighs, shedding tears and remaining lost in thoughts. This verse is cited twice in the RS.

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18. यथा मालतीमाधवे मकरन्दः - वयस्य माधव सर्वथा समाश्वसिहि- अत्र संगमरूपसाध्यार्थसिद्धये परस्परानुरागसिद्धि-मदनरूपाणामुपायानां सद्भावकथनाद् विचारः । RS. p.377

19. अत्र प्रस्तुतचित्रनिर्माणानिर्वाहान्माधवस्य किं करोमीति वागारम्भसूचितया तद्दर्शनोपायचिन्तया विषादो व्यज्यते । *Ibid.* p.151

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12. जगति जयिनस्ते ते भावा नवेन्दुकलादयः
प्रकृतिमधुराः सन्त्येवान्ये मनो मदयन्ति ये ।
मम तु यदियं याता लोके विलोचनचन्द्रिका
नयनविषयं जन्मन्येकः स एव महोत्सवः ॥ (MM I.39 ; RS. p.213 ; 375)

(In this world there are various things like the crescent moon which are naturally sweet and others which excite the mind, but to me the fact that this girl who is like moonlight to my eyes, came within the range of my vision, is the only great festivity in my life.)

Siṁhabhūpāla cites this verse twice as an example of *rati* by *saṁsarga*[20] and *Viśeṣaṇa*. *Viśeṣaṇa* is the special mention of a particular thing in a description. After stating the various agents which induce lasciviousness in him, Mādhava in MM makes special mention of Mālatī in this regard. Hence it illustrates *viśeṣaṇa*[21]. However, *Daśarūpaka* (p.227) cites it as an example of *Promodātmā-rati*. This verse is cited in the *Kāvyaprakāśa*,[22] *Kāvyapradīpa*,[23] *Alaṁkāramahodadhi*, *Sūktimuktāvali*. Amṛtānanda[24] finds a poetic blemish called *vyāghāta* in this verse.

13. राज्ञः प्रियाय सुहृदे सचिवाय कार्याद्
दत्त्वात्मजां भवतु निर्वृतिमानमात्यः ।
दुर्दर्शनेन घटतामियमप्यनेन
धूमग्रहेण विमला शशिनः कलेव ॥ (MM II.8 ; RS. p.356)

(Let the minister be happy by giving his daughter, on purpose, to the king's dear friend and counselor; and let this girl also be united with that ugly person, like the bright digit of the moon with a shrouding comet.)

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20. अत्र माधवस्य विलोचनचन्द्रिकानयनमहोत्सवाद्यभिमानेन इतररमणीयवस्तुनैःस्पृह्येन च मालत्यां रतिः । *Ibid.* p.213
21. इत्यत्र इन्दुकलादीन् मनोमदहेतुतया प्रसिद्धानुपत्या तत्समानमाधुर्यायामपि मालत्यां विशेषकथनादिदं विशेषणम् । *Ibid.* p.375
22. अत्रेन्दुकलादयो यं प्रति पस्पशप्रायाः, स एव चन्द्रिकात्वमुत्कर्षार्थमारोपयतीति व्याहतत्वम् । KP. p.268
23. इत्युपलक्षितविरुद्धत्ववान् । यथा - अत्र पूर्वार्धे साधारणचन्द्रिकाचन्द्रकलाः स्वं प्रत्यसारयता प्रतिपादिताः । तेनैवोत्तरार्धे चन्द्रिकात्वमुत्कर्षायारोप्यत इति व्याघातः । दूषकताबीजं च वाक्यार्थाप्रतीतिः, अयं नित्यो दोषः । *Kāvyapradīpa*, p.235
24. अत्रेन्दुकलाऽऽदयो यं प्रत्यवस्तुभूताः स एवोत्कर्षार्थं चन्द्रिकात्वमारोपयतीति व्याहतत्वम् । *Alaṁkāramahodadhi*, p.157

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The verse is cited as an example of *Bheda*[25] which is a *sandhyantara*. It is the sowing of the seeds of dissension among friends by means of deceitful task. It is available in MM in the words of Kāmandakī creating difference between Mālatī and her father. As we know, *Mukhasandhi*, the opening portion of the subject-matter of a drama contains *bīja*, the beginning of the action. Siṁhabhūpāla defines *Bheda* as a *sandhyantara* which helps in the growth of *bīja* and a breach of union. This verse is cited by Viśveśvara Pāṇḍeya in his *Alaṁkārakaustubha* (P.25).

14. असौ विद्याशाभिः शिशुरपि विनिर्गत्य भवनाद्
इहायातः संप्रत्यविकलशरच्चन्द्रमधुरः ।
यदालोकस्थाने भवति पुरमुन्मादतरलैः
कटाक्षैर्नारीणां कुवलयितवातायनमिव ॥ (MM II.11 ; RS. p.383)

(This embodiment or treasure-house of learning, though a mere child is coming here from his house, with a face like the full autumnal moon. The city at the place where he is within the range of vision looks as if decked with blooming blue lotuses at the windows, because of the side glance of tremulous with emotion.)

The verse is cited as an example of *Lesa*[26] which is a *bhūṣaṇa*. This dramatic technique is also known as *Lekha*. It is the specification of an adjective capable of conveying a particular idea of the speaker. The above verse contains the word *unmādataralaiḥ* the adjective with a specific purpose in view. Bhoja cites (p.133) this verse twice, once for *padyādau miśre drutavilambitā* and *saubhāgyasampad*, a quality of hero.

15. आश्चर्यमुत्पलदृशो वदनामलेन्दु-
सांनिध्यतो मम मुहुर्जडिमानमेत्य
जात्येन चन्द्रमणिनेव महीधरस्य
संधार्यते द्रवमयो मनसा विकारः ॥ (MM III.5 ; RS. p.377)

(It is wonderful mind of me, who am nobly born being again and again benumbed in the presence of the spotless moon of the face of the lotus-eyed one, experiences a fluid condition by its being melted, just as the excellent moon-stone of a mountain undergoes fluidity by its chillines being acted upon by the clearly shining moon.)

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25. अनादृतस्यैवोत्कर्षो वाक्ये स्याद्व्याहतो यथा ।
अनादृत्येन्दुरेखाद्यं श्लाघ्यते चन्द्रिका त्विह ॥ *Alaṁkārasaṁgraha*, p.79
इत्यत्र कामन्दक्या मालतीतज्जनकयोर्भेदकल्पनं भेदः । RS, p.356

26. इत्यत्र कामन्दक्या मालत्यनुरागज्ञाननिवेदनस्य उन्मादतरलैरिति विशेषणस्य कथनादयं लेशः । RS, p.383

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The verse is cited for illustrating the concept of *Tulyatarka,*[27] which is the statement of an imperceptible thing by employing a metaphor or a simile. We find the same illustrated in the third act of MM when Mādhava describes his mind as being taken possession of by love, employing similes.

Viśvanātha defines *Tulyatarka* as a surmise made from some statement in the situation at hand (SD, VI. 180). Bhoja cites this verse as an example of *Rasabhāvāśraya-pumān.* (P.26).

16. तन्मे मनः क्षिपति यत् सरसप्रहार-
मालोक्य मामगणितस्खलदुत्तरीया ।
त्रस्तैकहायनकुरङ्गविलोलदृष्टिः
साश्लिष्टवत्यमृतसंवलितैरिवाङ्गैः ॥ (MM IV.8 ; RS. p.212)

(This touches my mind, that she, with eyes as unsteady as those of a frightened fawn one year old, on beholding me covered with fresh wounds, embraced me, not caring for her upper garment which was slipping off, with limbs that were steeped in nectar as it were.)

Siṁhabhūpāla cites this verse as an example of *rati* by *nisarga*[28].

17. कुवलयदलश्यामोऽप्यङ्गं दधत् परिधूसरं
ललितविकटन्यासः श्रीमान् मृगाङ्कनिभाननः ।
हरति विनयं वामो यस्य प्रकाशितसाहसः
प्रविगलदसृक्पङ्कः पाणिर्ललन्नरजाङ्गलः ॥ (MM V.5 ; RS. p.31)

(The youth has a pale body though has dark complexion like a blue lotus. He has a graceful gait and a moon-like face. He holds in his left hand a piece of human flesh dripping with thick blood, which indicates his daring and rash nature.)

The scene of Act V is laid in the cemetery of Padmāvatī near the temple of Goddess Karālā. It opens with Kapālakuṇḍalā, a female disciple of Aghoraghaṇṭa, flying through the sky and praising God Śiva. There she notices a man with a sword in hand, who has come to the cemetery for selling human flesh to goblins. She describes him as *kuvalayadalasyāma.* She recognizes him as Mādhava, the son of Kāmandakī's friend, who

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27. इत्यत्र इन्दुचन्द्रकान्ताद्युपमया अप्रत्यक्षस्य स्नेहरूपविकारस्य कथनात् तुल्यतर्कः । *Ibid.*, p.377
28. अत्रोत्तरीयस्स्खलनादिसूचितेन मदयन्तिकाप्रेमाभियोगेन मकरन्दस्य तत्र रतिरुत्पद्यते । *Ibid.*, p.212
29. समप्रकृतिकः क्लेशसहिष्णुश्च विवेचकः । ललितादिगुणोपेतो विप्रो वा सचिवो वणिक् ।
धीरशान्तश्चारुदत्तमाधवादिरुदाहृतः ॥ *Ibid.*, p.30

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has come there to sell human flesh. It is cited as an example of *Dhīraśānta*[29] type of hero. Viśveśvara Pāṇḍeya in his *Alaṁkāramuktāvali* cites this verse.

18. लीनेव प्रतिबिम्बितेव लिखितेवोत्कीर्णरूपेव च
प्रत्युप्तेव च वज्रलेपघटितेवान्तर्निखातेव च ।
सा नश्चेतसि कीलितेव विशिखैश्चेतोभुवः पञ्चभि-
श्चिन्तासंततितन्तुजालनिबिडस्यूतेव लग्ना प्रिया ॥ (MM V.10 ; RS. p.186)

(Her beloved is as though, concealed in his mind. She is as it were reflected, painted, carved, implanted, fixed with adamantine glue, deeply dug in nailed with the five arrows of cupid and sewn to his mind with numerous threads in the form of continuous contemplation.)

It is one of the well-known verses of Bhavabhūti. The verse contains the feelings of Mādhava who describes his own condition on account of constantly thinking of Mālatī. We have in this verse a shower of poetic fancies as it were. They bespeak the poet's uncommonly fertile fancy. Being accustomed to describe a matter in detail instead of suggesting it briefly, Bhavabhūti pours a shower of *Utprekṣās*. As Kālidāsa is unrivalled in the use of *upamās*, so is Bhavabhūti is respect of *utprekṣās*. Bhavabhūti is also well-known for his ability in describing an idea by various imageries. The above verse describes very clearly how his beloved Mālatī became firmly fixed in the mind of Mādhava, who was constantly thinking of her. Various *utprekṣās* seem to be struggling with one another in pressing themselves on the attention of Bhavabhūti when he describes this feeling. In this verse the commentator sees references to many philosophies[30]. Siṁhabhūpāla cites this verse as an example of memory (*smṛti*) caused by serious thought. Dhanañjaya and Viśveśvara Pāṇḍeya in his *Rasacandrikā* (P.46) accepts the same. This verse is cited in *Alaṁkāramahodadhi* for *Utprekṣā-alaṁkāra*[31]. *Rasakalikā* cites for *avasthāviśeṣena rasavistāra*. Bhoja cites twice for (a) *ivādyā vṛttayaḥ* (b) *utprekṣāvayavam*.

19. अशस्त्रपातमव्याजपुरुषाङ्गोपकल्पितम् ।
विक्रीयते महामांसं गृह्यतां गृह्यतामिदम् ॥ (MM V.12 ; RS. p.361)

(I am seeling human flesh which is undefiled by a weapon, real, and taken from the limbs of men. Take this, take this.)

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30. लीनत्वं तदात्मतया संबद्धत्वम् । विषयविषयिणोस्तदात्मरूप एव संबन्ध इति योगाचारमतेनोक्तम् । प्रतिबिम्बितेवेति साङ्ख्यमतोपदर्शनम् । लिखितेवेति सौत्रान्तिकमतोपदर्शनम् । उत्कीर्णरूपेवेति विषयाकारेण चैतन्यपरिणाम इहोत्कीर्णरूपता । अतः त्रिदण्डिमतम् । प्रत्युप्तेवेति.....पातञ्जलमतम् । वज्रलेपघटितेवेति नैयायिकमतम् । अन्तर्निखातेवेति विज्ञानवादिमतोपदर्शनम् ।

31. लीनेव-मालारूपा-उत्प्रेक्षा । अत्र लग्नेति क्रिया लीनेवेत्यादि क्रियात्वेनोत्प्रेक्षिता । *Alaṁkāramahodadhi*, p.268

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This verse is cited as an example of *Sāhasa*[32] (daring act) which is a *sandhyantara*. It is an action regardless of one's life or safety. It is found conceived in the words of Mādhava attempting to sell flesh at the cemetery.

20. निष्टापस्विद्यदस्थ्नः क्वथनपरिणमन्मेदसः प्रेतकायान्
आकृष्यासक्तधूपानपि कुणपभुजो भूयसीभ्यश्चिताभ्यः ।
उत्पक्वस्रंसि मांसप्रचलदुभयतः संधिनिर्मुक्तमाराद्
एते निश्चूष्य जङ्घानलकमुदयिनीर्मज्जधाराः पिबन्ति ॥ (MM V.17 ; RS. p.236)

(The eaters of the dead bodies, dragging from the numerous funeral piles the corpses although enveloped in smoke, the marrow in which is being seasoned by the boiling in the bones which are being moistened by heat, and having bared the thigh-bone, the flesh of which is dropping down on account of its being roasted, which is detached from the joints, and which is hanging loosely on either side, are drinking the streams of liquefied marrow issuing forth it being in close contact with them.)

The above verse is cited as an example of *jugupsā*[33] (disgust), a *sthāyibhāva* which is defined as the contraction of mind at the sight or hearing of unpleasant things.

21. प्रणयिसखीसलीलपरिहासरसाधिगतै-
र्ललितशिरीषपुष्पहननैरपि ताम्यति यत् ।
वपुषि वधाय तत्र तव शस्त्रमुपक्षिपतः
पततु शिरस्यकाण्डयमदण्ड इवैष भुजः ॥ (MM V.31 ; RS. p.194 ; 357)

(Let this arm of mine fall, like the untimely rod of Yama, on the head of you that raised your weapon to strike a body which experiences fatigue even by the strokes of the tender *śirīṣa* flower sportively cast at her in their fondness for jokes by her loving friends.)

Siṁhabhūpāla cites this verse twice. It is given as an example of *daṇḍa*[34], which is defined as an infliction of punishment or threatening at the sight, or hearing of insolence. This verse makes a threatening in the words of Mādhava to Aghoraghaṇṭa. Pūrṇasarasvatī takes this verse to represent *Saṁpheṭa*, a *vimarśasandhyaṅga* whereas Dhanika cites this verse for *Saṁpheṭa*, but as a *Ārabhaṭyavṛttyaṅga*.

Siṁhabhūpāla also cites this verse again as an example of *Augrya*[35], a

32. अत्र माधवस्य महामांसविक्रयव्यापारः साहसम् । RS P.361

33. अत्र जङ्घानिश्चूषणमज्जधारापानादिजनिता पिशाचविषया माधवस्य जुगुप्सा गर्हणेन एते कुणपभुज इत्यनेन व्यज्यते । *Ibid.* p.236

34. अत्राघोरघण्डस्याविनयदर्शनेन माधवकृततर्जनं दण्डः । *Ibid.* p.357

35. अत्र मालतीनिकाररूपापराधाद् माधवस्यौग्र्यम् । *Ibid.* p.195

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vyabhicāribhāva caused by offence, humiliation, offending words etc. In the given verse the feeling of dreadfulness arises because of offence. This verse is cited by Mammaṭa[36], *Alaṁkāramahodadhikāra*[37], (pp.79-80), Viśvanātha (p.134) and SMP.

22. वयं तथा नाम यथात्थ किं वदा-
म्ययं त्वकस्माद् विकलः कथान्तरे ।
कदम्बगोलाकृतिमाश्रितः कथं
विशुद्धमुग्धः कुलकन्यकाजनः ॥ (MM VII.1 ; RS. p.117)

(Granted that we are as you represent us to be. What can I say to that ? But how come it that this person, a maiden of high family, pure and guileless, suddenly has become unnerved in the course of conversation and assumed the form of the bud-convered kadamba ?)

The verse is an example of *Narma*[38] which is one of the varieties of *kaiśikīvṛtti.*

23. याता भवेद् भगवतीभवनं सखी नो
जीवन्त्यथैष्यति न वेत्यभिशङ्कितोऽस्मि ।
प्रायेण बान्धवसुहृत्प्रियसंगमादि
सौदामिनीस्फुरणचञ्चलमेव सौख्यम् ॥ (MM VIII.14 ; RS. p.370)

(Whether our friend Malatī has gone to the residence of the revered lady or not; whether she will come to us alive or not - such doubts haunt me; for happiness, such as from the company of kinsfolk, of friends and those we love, is as fleeting as the flash of lightning.)

Siṁhabhūpāla cites this verse as an example of *saṁśaya*[39].

24. प्रियमाधवे किमसि मय्यवत्सला
ननु सोऽहमेव यमनन्दयत् पुरा ।
स्वयमागृहीतकमनीयकङ्कण-
स्तव मूर्तिमानिव महोत्सवः करः ॥ (MM IX.9 ; RS. p.33)

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36. काव्यलिङ्ग-अनेकपदार्थता । KP; अत्र भुजदण्डपाते
सुकुमारपुर्वधाय शस्त्रं तदुपक्षेपश्चेत्यनेकः पदार्थो हेतुः । *Vidyācakravartin,* p.455

37. चौर्यद्रोहादिसम्भवं चण्डत्वमुग्रता । सा चापकारिणं प्रति वाग्-दण्डपारुष्यवधादीति करोति ।
Alaṁkāramahodadhi, p.79

38. अत्र लवङ्गिकया विशुद्धमुग्धः कुलकन्यकाजन इति परिहासेन मदयन्तिकानुरागनिवेदनान्नर्म । RS. p.117

39. यथा मालतीमाधवे मकरन्दः - इत्यत्र मालती कामन्दक्या गृहं गता वा जीवति वा न वेति संशयेन वाक्यसमाप्तेरयं संशयः । *Ibid.* p.371

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(Oh, you to whom Mādhava was dear, why are you unkind to me ? Surely I am the same Mādhava whom formerly your hand, with the charming wedding string-bracelet put on by you of your own motion, delighted as if it were a great festival incarnate.)

It is cited as an example of *Dhīraśānta-anukūla* type of hero. As the heroes of the plays are connected with wives in particular, they are classified under three major groups: *Pati, Upapati* and *Vaiśikas. Anukūla* is one sub-type of *Pati.*

25. एतस्मिन् मदकलमल्लिकाक्षपक्ष-
व्याधूतस्फुरदुरुदण्डपुण्डरीकाः ।
बाष्पाम्भःपरिपतनोद्गमान्तराले
दृश्यन्तामविरहितश्रियो विभागाः ॥ (MM IX.14 ; RS. p.77)

(Behold, in the intervals of the trickling down and the gushing forth of the tears, these spots in the lake with their broad-stemmed lotuses waving being shaken by the wings of the Mallikākṣa birds singing through passion, and with their beauty never deserting them.)

The verse is cited as an example of *Dīrghikā,* one of the *Taṭasṭhas.* Siṁhabhūpāla provides a list of sixteen objects called *Dīrghikās,* the accessories of *Uddīpanavibhāva.* They are called *dīrghikās* because they are not actively involved in the development of sentiment as the hero, heroine or their assistants. The word *taṭastha* literary means the object which rests on the bank and hence it has a passive role. It is further said that the *uddīpanavibhāva* (the excitant) based on *ālambana* is fourfold since the *ālambana* differs in respect of *guṇa, ceṣṭā, alaṅkṛti* and *tāṭasthya.* In MM the swan named Mallikākṣa is a *taṭastha* because it has a passive role.

26. यत् प्रागेव मनोरथैर्वृतमभूत् कल्याणमायुष्मतो-
स्तत् पुण्यैर्मदुपक्रमैश्च फलितं क्लेशोऽपि मच्छिष्ययोः ।
निष्णातश्च समागमोऽभिविहितस्त्वत्प्रेयसः कान्तया
संप्रीतौ नृपनन्दनौ यदपरं प्रेयस्तदप्युच्यताम् ॥ (MM X.23 ; RS. p.309)

(The happy union of you two, of long life, which has been cherished by the mind just from the beginning, has been accomplished by our merits and my efforts; the pains of my two disciples too have been rewarded also the union of your dearest friend with his beloved has been effected beyond the shadow of a doubt; and delight has been brought to the king and Nandana; if there be any thing more that you wish for, let that also be declared.)

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The verse is cited as an example of *kārya* which is one of the *itivṛttas*. It is an example of *Śuddha-kārya*[40].

III. *UTTARARĀMACARITA*

27. इदं कविभ्यः पूर्वेभ्यो नमोवाकं प्रशास्महे ।
वन्देमहि च तां वाणीममृतामात्मनः कलाम् ॥ (URC I.1 ; RS. p.319)

(We tender this tribute of homage unto the bards of yore and bow down unto the Goddess of speech that portion immortal of the supreme spirit).

The *nāndī* of the URC consists of twelve *padas* (words). In this *nāndī*, we find salutations to the ancient poets, probably Vālmīki, Vyāsa, Bhāsa and Kālidāsa and the Brahman in the form of word. No blessings are sought for the audience as is usually done. The words *ātmanaḥ* and *kalām* of the *nāndī* verse may be taken as suggesting the principal characters of the play, viz., Rāma and Sītā respectively. Vīrarāghava has tried to deduce the substance of all the Acts from the *nāndī* verse, but his deduction appears to be the result of his far-fetched imagination. Ghate Shastri opines that by the salutation to the ancient poets- the subject matter of the first Act, viz., salutation and prayer to the presiding deity of jṛmbhaka missiles, Bhāgīrathī, Pṛthivī, Vasiṣṭha and Arundhatī etc. is suggested; and its fruit in the form of the obtainment of Sītā, the subject-matter of Act VII is also hinted at. (Quoted by G.K. Bhatt, in URC, Notes, p.284).

Bhoja cites this verse.

The verse is cited as an example of *Namaskriyāvatī - nāndī*. The verse has the significance as a *nāndī*. It differs from the previous two plays as it does not contain any invocation either to the Supreme Being or to any God. It is a prayer to the ancient seers for attaining the divine power of speech.)

28. अलसलुलितमुग्धान्यध्वसंजातखेदाद्
अशिथिलपरिरम्भैर्दत्तसंवाहनानि ।
परिमृदितमृणालीदुर्बलान्यङ्गकानि
त्वमुरसि मम कृत्वा यत्र निद्रामवाप्ता ॥ (URC I.24 ; RS. p.200)

(That region where you sank into sleep, having reposed on my bosom your limbs lovely though wearied and drooping from fatigue of the journey, soothingly pressed by close embraces and languid like a crushed lotus-stalk.)

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40. इत्यत्र काव्योपसंहारश्लोकेन तृतीयपुरुषार्थस्यैव फलत्वकथनात् शुद्धं कार्यमिदम् । *Ibid.* p.309

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It is cited as an example of *vyāyāma* (physical exercise) which is a cause of *Nidrā*. It is a *vyabhicāribhāva*. Here it is to note that the text edited by Kane accept the reading *Lalita*. *lalita* is a *hāva*, very well exposure. The *Daśarūpaka* cites it as an example of *śrama* caused by *adhva*. This verse is cited in *Rasaratnākara*, *Alaṁkāramahodadhi*, *Kāvyānuśāsana*, *Subhāṣitāvali* and *Rasavilāsa* of Bhūdeva Śukla.

29. इयं गेहे लक्ष्मीरियममृतवर्तिर्नयनयो-
रसावस्याः स्पर्शो वपुषि बहलश्चन्दनरसः ।
अयं कण्ठे बाहुः शिशिरमसृणो मौक्तिकसरः
किमस्या न प्रेयो यदि परमसह्यस्तु विरहः ॥

(She to the house a very Lakṣmī, the Goddess of wealth and plenty- to the eyes an ambrosial pencil- this touch of hers like a thick sandal- juice to the body-her arm round my neck, cold and tender as a pearl-necklace: what of hers is not dear, save only that unendurable separation ?)

Siṁhabhūpāla cites this verse as an example of *Patākāsthānaka* (striking point). It intimates a matter by mentioning something extraneous that is about to happen. It contains continuous matter. The *Patakāsthānaka* is of two types viz. *Tulyasaṁvidhāna* and *Tulyaviśeṣaṇa*. Siṁhabhūpāla divides the former into three varieties while he accepts the latter as a variety by itself. It consists of words of surprise and pun conducive to the aim of the composition. Hence it is *ślisṭa*. In the URC, Rāma describes the exhilarating company of Sītā and says that her separation is unbearable: Immediately the doorkeeper enters and says : 'there has come, my lord'- an ironical hint at the impending separation. This verse contains many examples of *Rūpaka*. It is cited by Vāmana in his *Kāvyālaṁkārasūtravṛtti* under IV.3.6. This verse together with the words of Pratīhārī and Rāma in the *Daśarūpaka* III. 18 and the *Nāṭyadarpaṇa*[41] cited as an example of *Gaṇḍa* which is defined as *prastutasambandhibhinnārtham sahasoditam*. However, Mahiamabhaṭṭa finds[42] fault with

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41. अत्राकस्मात् प्रतीहारवचनमन्याभिप्रायप्रयुक्तं प्रस्तुतवचसा संयुज्यमानत्वाद् 'गण्ड' । *Nāṭyadarpaṇa*, pp.249-50

42. 'इयं गेहे' इति । अत्र प्रथमे पादे साक्षान्नायिकायाः स्वरूपं वर्णयितुमुपक्रम्योत्तरत्र भेदेन तदीयस्पर्शादिवर्णनं निर्वाहितमिति वस्तुप्रक्रमभेदे दोषः ।

ननूभयत्राप्यर्थतस्तत्स्वरूपप्रकर्षप्रतीतिः पर्यवस्यतीति कथमयं दोषः । सत्यम् । स्यादेवं यद्यसावुभयत्राप्यसञ्जात-परिस्खलनस्वेदवैरस्या सत्येकरसैव पर्यवस्येत् । न चोक्तनयेनैतत्सम्भवतीति दोषतयैवायमुक्तः । तेन मुखं पूर्णश्चन्द्रो वपुरमृतवर्त्तिर्नयनयोः' इत्येवमयं पाठः परिणमयितव्यः ।

अत्र यत् साक्षान्नायिकावर्णनं तदवाच्यमेव । तत्सम्बन्धिनामेव स्पर्शादीनामिव रम्याणामर्थानां विरहव्यतिरेकणाङ्गभावोपग-माद् । न तस्या एव विरहस्य तत्सम्बन्धित्वेऽप्यसह्यत्वाभिधानादिति तस्या वचनं दोषः । तेन 'मुखं पूर्णश्चन्द्रो वपुरमृतवर्त्तिर्नयनयो' रित्यत्र युक्तः पाठः । VV. p.437

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this verse and points out *Vastuprakrama-bheda-doṣa* in it. This verse is cited in the *Alaṁkāramahodadhi, Rasacandrikā, Alaṁkāramuktāvali* and *Kāvyānuśāsana.*

30. अद्वैतं सुखदुःखयोरनुगतं सर्वास्ववस्थासु यद्
विश्रामो हृदयस्य यत्र जरसा यस्मिन्नहार्यो रसः ।
कालेनावरणात्ययात् परिणते यत् स्नेहसारे स्थितं
भद्रं तस्य सुमानुषस्य कथमप्येकं हि तत् प्राप्यते ॥ (URC I.38 ; RS. p.224)

(Happy is that lucky man, who with difficulty has secured that unique thing viz. perfect identity in happiness and misery, favourable in all conditions, where the heart finds its solace, the flavour of which cannot be taken away by old age, which ripens into firm attachment after time has removed the veil of reverse.)

The verse is cited as an example of *māñjiṣṭha-rāga.* In order to illustrate *rāga,* one among the six varieties of *rati,* Siṁhabhūpāla cites this verse from URC. *Rati* is the mutual desire for union between youthful man and woman. It gets developed into six stages viz. *prema, māna, praṇaya, rāga, anurāga* and *sneha.* Again, *Rāga* has three varieties viz. *Kusumābharāga,* quick but easily vanquishing love, *nīlirāga,* which does not vanish but remains inactive and *māñjiṣṭha- rāga,* quick and lasting. However, while Dhanañjaya cites this verse as an example of *anukūla-nāyaka,* Rudrabhaṭṭa in his *Rasakalikā* cites this for illustrating the apprehension of death.

Bhoja cites this verse as an example of *Kāmodarka.* Rudrabhaṭṭa shows *rasasya paramotkarṣa* (the sentiment of higher quality) in this verse for there is absence of diminishing love and destruction of love. Sūktīmuktāvali cites it for *kulastrīpaddhati.*

Siṁhabhūpāla cites this verse for *māñjiṣṭharāga.*

31. हा हा धिक् परगृहवासदूषणं यद्
वैदेह्याः प्रशमितमद्भुतैरुपायैः ।
एतत् तत् पुनरपि दैवदुर्विपाका-
दालर्कं विषमिव सर्वतः प्रसुप्तम् ॥ (URC I.40 ; RS. p.151)

(Alas, oh alas, That scandal, due to the residence in a stranger's house of this daughter of the Videha-king that scandal which formerly through means miraculous we had put down - that like a mad hound's venom, is once again by an adverse turn of fortune, spreading fast everywhere.)

It is cited as an example of *viṣāda*[43]. It is explained under the verse *vāraṁ vāraṁ tirayati* etc.

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43. अत्र सीतापवादरूपाया विपत्तेर्हा हा धिगिति वागारम्भणे रामस्य विषादो गम्यते । RS. p.151

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32. यस्यां ते दिवसास्तया सह मया नीता यथा स्वे गृहे
यत्संबन्धिकथाभिरेव सततं दीर्घाभिरस्थीयत ।
एकः संप्रति नाशितप्रियतमस्तामेव रामः कथं
पाप पञ्चवटीं विलोकयतु वा गच्छत्वसंभाव्य वा ॥ (URC II.29 ; RS 149)

(That Pañcavaṭī wherein, in that blissful manner those days with her I passed and later, in our home, with long talks about which Pañcavaṭī we constantly whiled away our time alone, now, after being the cause of the loss of his dear wife, how should Rāma, sinful as he is, visit that Pañcavaṭī, or how pass on regardless of it ?)

The verse is cited as an example of *nirveda*[44] (self-disparagement), a *vyabhicāribhāva*. Siṁhabhūpāla defines it as *naisphalyamatiḥ nirvedaḥ*. It arises from five causes, viz. *Tattvajñāna, daurgatya, āpat, viprayoga* and *īrṣyā*.

33. अनिर्भिन्नो गभीरत्वादन्तर्गूढघनव्यथः .
पुटपाकप्रतीकाशो रामस्य करुणो रसः ॥ (URC III.1 ; RS. p.184)

(The grief-stricken condition of Rāma, not outwardly manifested on account of self-discipline, but causing secret and acute pain inside, is like a drug heated in a closed pot.)

It is cited for *Avahitthā* by Prābhava.

34. किसलयमिव मुग्धं बन्धनाद् विप्रलूनं
हृदयकुसुमशोषी दारुणो दीर्घशोकः ।
ग्लपयति परिपाण्डु क्षाममस्याः शरीरं
शरदिज इव घर्मः केतकीपत्रगर्भम् । (URC III.5 ; RS. p.153-4)

(Just as that heat developed in autumn does with respect to the inner petal of the ketakī flower, so the terrible and lasting grief that has emaciated her flowerlike heart, is drying up her extremely pale and lean body which resembles a beautiful new leaf picked from its stalk.)

It is a beautiful verse of Bhavabhūti containing some charming similes. Tamasā in this verse gives a description of grieving Sītā. The poet has used similes to describe Sītā's body which is pale and emaciated by grief. Her body is like a beautiful tender sprout severed from its stem, and like the inner petal of a Ketakī flower withering by autumnal heat. Siṁhabhūpāla cities this verse as an example of *ādhi*, a cause of *glāni*. This verse is cited in the *Sarasvatīkaṇṭhābharaṇa, Alaṁkāramahodadhi, Sāhityadarpaṇa* and *Kāvyānuśāsana*.

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44. अत्र सीताविप्रयुक्तस्य रामस्य वागारम्भसूचितेनाभावमाननेन निर्वेद प्रतीयते । RS. p.150

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35. त्वं जीवितं त्वमसि मे हृदयं द्वितीयं
त्वं कौमुदी नयनयोरमृतं त्वमङ्गे ।
इत्यादिभिः प्रियशतैरनुरुध्य मुग्धां
तामेव-शान्तमथवा किमिहोत्तरेण ॥ (URC III.26 ; RS. p.381)

(You are my life, you are my second heart; you are the moonlight in my eyes and the ambrosia to my limbs- You flattered your guiles wife with hundreds of such loving expressions and her you - Or peace. Why talk more of this ?

The verse is cited as an example of *guṇakīrtana*[45] which is a *bhūṣaṇa.* It is the encomium given to one after describing one with different names to be the seat of all excellence. The stanza contains Rāma's praise of Sītā wherein she is addressed as an ambrosia, moonlight etc. To Viśvanātha, *guṇakīrtana* consists in the declaration of excellences. When merits of many men who have distinguished themselves in their own way are said to be possessed by one and the same person, it is *guṇakīrtana* as accepted by Bharata. According to Rudrabhaṭṭa, *pralāpa* is *guṇakīrtana.*

The present verse is a fine specimen of the force and pathos of Bhavabhūti's words. It is noticed that Bhavabhūti usually uses long and involved compounds. But, this verse containing intense feeling is almost free from them. This verse is quoted in the *Daśarūpaka* (III.17) under *Vākkeli.* The latter half of the verse is a fine example of the figure of speech called *Ākṣepa,* which occurs when there is an apparent denial (suppression) of something, which was intended to be said, for the purpose of conveying some special meaning. P.V. Kane takes it as an example of *ākṣepa-alaṁkāra.* He observes that "in *ākṣepa* there is suggested sense (*viśeṣa*). But this suggested sense is not prominent but subordinate to the expressed sense. The mode of speech itself is charming. Therefore although there is a suggested sense, this is not *dhvani,* but *guṇībhūtavyaṅgya.*"

This verse is cited in the *Bhāvaprakāśana, Sūktimuktāvali* of Jallhaṇa and *Alaṁkārakaustubha.*

36. यदृच्छासंवादः किमु गुणगणानामतिशयः
पुराणो वा जन्मान्तरनिबिडबद्धः परिचयः ।
निजो वा संबन्धः किमु विधिवशात् कोऽप्यविदितो
ममैतस्मिन् दृष्टे हृदयमवधानं रचयति ॥ (URC V.16 ; RS. p.115)

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45. इत्यत्र अमृतकौमुदीप्रभृतिनामभिः सीताशंसनं गुणकीर्तनम् । *Ibid.* p.381
यथोत्तररामचरिते पञ्चमाङ्के कुमारी (अन्योन्यं प्रति अहो प्रियदर्शनः कुमारः)
अत्र लवस्य चन्द्रकेतोश्च परस्पराकारविशेषसंदर्शनेन रणसंरम्भौद्धत्यपरिहारेण विनयार्जवस्वीकारकथनात् परिवर्तकः ।
Ibid. p.115

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(Is it merely the chance encounter or is it the excellence of his qualities- is it some ancient and intimate friendship of an earlier birth- or is it some kinship between us that has remained unknown by the power of fate, and inexplicable ? - I do not know why but as I look upon him my heart becomes all attention.

The present verse is cited as an example of *Parivartaka*[46] which is one of the varieties of *Sāttvatīvṛtti.*

37. आयुष्मतः किल लवस्य नरेन्द्रसैन्यै-
रायोधनं ननु किमात्थ सखे तथेति ।
अद्यास्तमेतु भुवनेषु स राजशब्दः
क्षत्रस्य शस्त्रशिखिनः शममद्य यान्तु ॥ (URC IV.16 ; RS. p.359)

(That the long-lived Lava has had an affray with the army of the king''- is there any truth in this report ? ''Even so, dear friend, didst thou say ? To-day then, in all the worlds let the title supreme king come to an end, and let the fires of the Kṣatriya weapons be all quenched this day.)

This verse is cited as an example of *Ojas,* one of the *sandhyantaras.* It is defined as an expression of one's own prowess. It is evident in the URC where the might of Lava finds powerful description in the words from behind the curtain. This verse facilitates the task of the dramatist, the actors also help the spectators in relishing the piece presented with utmost ease.

Conclusion :

One can easily make out that this type of selection and collection of illustrative verses is not an easy task. To identify a particular verse for illustrating a dramatic technique out of hundreds of literary works with proper justification is in fact a very laborious process. It not only requires an in-depth understanding but also keen intelligence combined with proper sense of judgement. By doing this Siṁhabhūpāla like many other critics of his type has done a commendable work.

Ambardekar remarks: ''In *Alaṁkāra* literature there is not a single quotation from *Mahāvīracaritam* VI-VII while there are many quotations from *Mahāvīracaritam* I-V.'' The present study also reveals that there are no quotations from the VI-VII acts.

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46. दानमात्मप्रतिनिधिर्भूषणादिसमर्पणम् ।
यथा मालतीमाधवे.....अत्र मालत्या मर्तुकामायाः
प्रतिनिधितया लवङ्गिकायां वकुलमालासमर्पणं दानम् । RS. pp.355-6

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The citations are given anonymously. The present investigation leads to the conclusion that Siṁhabhūpāla has not blindly followed any of his predecessors in the matter of the selection of the citations. His originality is clearly reflected.

What we understand from the above presentation is that the citations are not like any other ordinary verses. They bear some significance and that is why they are cited by the Sanskrit literary critics for some special point. It is observed that some verses are cited by many poeticians and for many important points. Without a careful study of all these citations it is not possible to understand the aesthetic beauty. An attempt was therefore made to prepare such a study in the above pages. Most important thing is that the concepts for which the verses are cited for illustration become clear since they are appropriate for them.

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BĀṆA'S REFERENCES TO "TERRACOTTA CHESSMEN" AND "DISCOURSES ON WAR" IN THE *HARṢACARITA*

RENATE SYED*

Recently I discussed the poet Bāṇa's well known reference to the game of chess played on the 64-square-board.[1]

Aṣṭāpadānāṃ caturaṅgakalpanā is one of seven remarks describing the peaceful reign of king Harṣavardhana[2] in Bāṇa's contemporary biography of the emperor, the "Harṣacarita", or "Life of Harṣa"[3]. And, it is the oldest Indian reference to the game of chess, *caturaṅga,* played on the 64-square-board, named *aṣṭāpada* in Sanskrit.

Armies (*caturaṅga*), so Bāṇa, were no longer set up on battlefields, but only lined up on substitute battlefields, or gaming boards, as battles were no longer fought, but played. The word *kalpanā,*[4] also signifying "creating in the mind, fake, hypothesis, fiction", clearly indicates that Bāṇa had play in mind, operations "as if". The arrangement of a playboard army is both fiction and imitation, the playboard army being a perfect miniature model of the real army. Both consist, as the name *catur-aṅga* ("four-memeber(-ed)") for the real army as well as the miniature one used in the game of chess indicates, of soldiers (*padāti* or *patti*), horses (*aśva*), elephants (*hastin*) and chariots (*ratha*), and, of course, the king, *rājan,* plus adviser, *mantrin* or *amātya.*[5] The given reference proves that the game of chess was played during the first half of the 7th century at the court of Kanyakubja, or Kanauj. While Bāṇa's reference to *caturaṅga* played on the *aṣṭāpada* is well known among

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* Pütrichstrasse 4, 81667 München (Munich), Germany.

1. Syed 2003.
2. King Harṣavardhana Śīlāditya of the Puṣyabhūti-dynasty ruled from 606/607 till 647 A.D. in the North Indian city of Kanyakubjā or Kanauj, an economic, religious and cultural centre, situated on the banks of river Gaṅgā (Ganges). Bāṇa's biography of the king is to be dated in the first half of the 7th century A.D.
3. See Kane, second *ucchvāsa,* pages 26 and 27.
4. *Kalpanā* acc. to Monier-Williams is: "making, manufacturing, preparing, practice .....creating in the mind, feigning, assuming anything to be real, fiction, hypothesis, form, shape, image". MacDonell under *kalpanā:* "fashioning, performance, invention, fiction, hypothesis, formation, form."
5. See Syed 1994 and 1995.

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Indologists and Chess-historians, his two other hints to the game have so far escaped attention and are to be dealt with in the present paper.

I recently discovered an edition of the *Harṣacarita* including the medieval commentary of Śaṅkara, which is valuable in the explanation of Bāṇa's metaphors and similes, his obscure words and puns. And, Śaṅkara also makes some useful remarks on the peot's references concerning chess, which are important for the understanding of the passage.[6]

1. *pustakarmaṇāṃ pārthivavigrahāḥ*

The second of the seven statements by which Bāṇa praises the peaceful reign of king Harṣavardhana is *pustakarmaṇāṃ pārthivavigrahāḥ,* to be rendered as : "Fights (*vigraha*) among kings/warriors (*pārthiva*) (were now only going on) among terracotta-objects/terracotta-makers (*pustakarman*)." King Harṣa, having conquered almost the whole of Northern India during the last decades, did, according to Bāṇa's enthusiastic and almost endless eulogy, no longer fight himself or allow minor kings, barons or earls to quarrel with each other. Bāṇa describes the subjugated aristocrats sitting on the floor of the palace hall, awaiting an audience, *darśana,* of their lord, *parameśvara,* showing signs of respect and submission, but also of despair.[7] So the only quarrels going on were among objects made of earth or among their manufacturers, i.e. potters of art. *Pusta* is, according to Boehtlingk/Roth: "Modellarbeit, Bilderei", (*pusta-maya* is "modelliert"); MacDonell says: "wrought in clay", Mayrhofer[8] gives: "*pusta-* n. Modellarbeit, Bildnerei.....*pustamaya-* modelliert.....", while *pustakarman-* (*kṛt-*) is a "modeller in plaster." Monier-Williams says under *pusta:* "working in clay, modelling", Apte translates: "plastering ... working in clay, modelling, anything made of clay....", (my emphasis, R.S.); *pustakarman* is "plastering" according to Monier-Williams. So, *pustakarman,* literally, "earth-work" or "clay-work", designates the act of modelling with clay, the object made of clay, and the

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6. While Parab gives no information concerning the date of the commentator Śaṅkara, Kane in his edition of the "Life of Harṣa" says: "The only commentary available is the Saṅketa, written by Śaṅkara.....As to the age of the commentator, we can give only an approximate result.....he is later than the 9th century A.D. but he is comparatively an early writer. He may have flourished before the 12th century A.D." Kane pp.xlix.
7. Bāṇa informs us that the humiliated kings, deprived of autonomy and territory, were scratching the earth with their fingernails, clearly a sign of distress and discomfort, see Syed 1993.
8. Mayrhofer: "*pusta* : Vielleicht zu der drav. Wortsippe von tam. *pucu* (*puci-*)... to besmear, plaster, kan. .... to smear, anoint, plaster....."

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worker with clay, the potter.[9]

I am thankful to Professor Siddharth Wakankar, Deputy Director, Oriental Institute of the University of Vadodara (Baroda) to give me the hint that *pārthivavigrahāḥ* itself includes a double meaning pointing to terracotta-figures: *pārthiva,* derived of *pṛthivī,* "earth", is indeed the same as *pusta*, meaning "made of earth, consisting of earth, earthen",[10] while *vigraha* is not only "war, fight, quarrel", but also "form, figure, body".[11] The occurrence of the word *vigraha* clearly indicates that Bāṇa had little figurines of warriors, elephants, horses and chariots in mind rather than non-figurative or abstract pieces.[12]

This is confirmed by the commentator Śaṅkara, who says: *pustakarma lepyam / pārthivavigrahāḥ mṛṇmayaśarīrāṇi, rājabhiḥ saha vairāṇi.* That is, "*pustakarman* (is) *lepya*". *Lepya* is "plastering, moulding, modelling", so Monier- Williams; derived from the root *lip,* "to smear, besmear, anoint with", while MacDonell gives "moulded, modelled" (emphasis mine, R.S.). Śaṅkara takes *pustakarman* to be the act of modelling and the object

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9. *karman* designates the doing or producing something, and equally, the object of this process. So Monier-Willimams gives under *karman* "act, action, performance.... occupation, obligation.... *and* .... product, result, effect". MacDonell: "action, work, deed .... effect, direct object of an action ....fate (result of an act done in a former birth)". The English "work", or the German "Arbeit", also mean both, the process of doing *and* the outcome or result.

10. Monier-Williams under *pārthiva:* "earthen, earthy, earthly, being in or relating to or coming from the earth, terrestrial ... a lord of the earth, king, prince, warrior ... an earthen vessel." If *pārthiva* can denote earthen vessels, then other earthen objects as well.

11. Kane in his commentary on the *Harṣacarita* already translated "earthen bodies" (S.157), but I paid no attention. Monier-Williams says under *vigraha:* "separation, resolution, analysis ...discord, quarrel, contest, strife, war with .... individual form or shape, form, figure, the body."

12. We can assume that early Indian chessmen were crafted of terracotta, a cheap and replaceable material, being used in India for everyday utensils, artefacts, toys and sacred objects since centuries, if not millennia. Of course, there were terracotta objects wrought for religious purposes, being used in rituals, among other purposes to secure fertility (?), and some pieces might have been toys for children. Anyhow, the meaning and use of the majority of the terracotta artefacts found in Northern India including pieces to be dated in the fifth and following centuries A.D. are still a question of debate among experts. I doubt the vast majority of hundred thousands of terracotta objects being toys, as children did not have the attention and importance as they are having today in Western societies. And if there were playthings for kids in ancient India, then why not for adult males, playing war ? So terracotta-armies most probably fought battles in sand-pits *and* in sand-tables.

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made of clay only, but not the manufacturer. His next comment says: "*pārthiva-vigrahāḥ* (is/are) mudmade-figures", *mṛd* being "earth, soil, clay, loam, a piece of earth, a clump of clay", *mṛṇmaya,* "made of clay or earth, earthen", and *śarīra* "the body, bodily frame, solid parts of the body, one's own Person" (Monier-Williams), indicating that the commentator thought of figurines, which were no doubt used in his time, some centuries later than Bāṇa. The gloss *rājabhiḥ saha vairāṇi,* "quarrels/feuds among kings", explains the obvious meaning of *pārthiva-vigrahāḥ*, that is, "fights among kings".

Bāṇa, a master of the art of ambiguity and eager to create a maximum of senses, multiple meanings and sub-texts with a minimum of apparent simple words, used equivocal words with double and triple meanings whose step-by-step decipherment granted aesthetic joy to the *sahṛdaya* ("with-heart, full of feeling, intelligent, loving"), or connoisseur, of the Sanskrit language. Bāṇa frequently employed the figure of speech, *alaṃkāra,* called "*śleṣa*", the simultaneous expression of two or more meanings brought about by the usage of a series of sounds, which have two or more applications. In *pārthiva-vigrahāḥ,* plural, "warrior-fights/earthen-figures", the poet created a multiple meaning in one expression, tickling the heart of the poetry lover, the *sahṛdaya.* Of course, only a highly learned expert in Sanskrit would be able to decode the hidden sense(s) and subtexts.

So, there are four possible translations of the expression:

1. "(Only) among earthen objects (were) fights of kings."
2. "(Only) among earthen objects (were) earthen figures."
3. "(Only) for/among clay-workers (happened to be/were) fights of kings."
4. "(Only) for/among clay-workers (happened to be/were) earthen figures."

The first translation is the obvious one, running parallel with *aṣṭāpadānāṃ caturaṅgakalpanā.* The second translation is redundant, while the third says that only workers in clay were making kings/warriors fight, and poses the question, where fights did *not* happen anymore (as it was the custom before). The answer is: among the kings and warriors themselves. The fourth translation states that only clay-workers possessed or carried earthen figures. So, Who on earth, is not anymore carrying these figures of warriors, then ?

My answer is: The theoreticians of war who used terracotta-figurines in teaching warfare. Estimated and honoured intellectuals in times of war, they were jobless now, becausee in these heavenly days of peace and love and understanding, there was no need of arranging miniature armies anymore, no need to teach war and battle, no need to ponder over victorious battles or brood over lost ones.

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In these days, says the poet, not warriors, but only terracotta-figures fought. But who made them fight then, if not the theoreticians of war ? Obviously chess-players, who put *caturaṅgas* on *aṣṭāpadas* for play and fun. I believe that terracotta-figurines of elephants, chariots, horses and warriors were employed in the first place by war-theoreticians to teach strategies and tactics of battle in sand-tables (as generals and strategists did all the time all over the world).[13] And, I am convinced that the game of chess did not come out of nothing, let alone, out of another game but developed out of sand-table-arrangements with miniature terracotta figurines for setting up the four members of the army and to demonstrate the elaborate battle arrays, called *vyūha*, "orderly arrangement of the parts of a whole" (Monier-Williams). These *vyūhas*, described in detail in the *Arthaśāstra*, the *Nītisāra*, and mentioned in the *Mahābhārata*, the *Agnipurāṇa* and other texts discussing warfare, were complicated patterns consisting of elements called wings, front, backs and centre, and arranged in many complicated forms. They were called, for example, *daṇḍavyūha*, "staff-array", *śakaṭavyūha*, "cart-array", *varāhavyūha*, "boar-array", *maṇḍalavyūha*, "circular array", or *asaṃhatavyūha*, "loose array". Other arrays had the form of a needle (*sūcivyūha*), a half moon (*ardhacandravyūha*), and even run zigzag, as the *gomūtrikāvyūha*. These battle arrays were applied with uttermost care, depending on diverse conditions as the composition, powers and shortcomings of the own army, the elements and strength of the hostile troops (as found out by spies); these *vyūhas* were, in addition, depending on climate or season, weather conditions, consistency of soil, vegetation, flora and fauna and so on. The best method of teaching these *vyūhas* was, of course, a three-dimensional didactic model using little (terracotta) figures as representations of the elements of army.

After having handled sand-table-battles long enough, an ingenious mind, so my conviction, put four elephants, four horses, four chariots, sixteen pawns and two kings plus their advisers on the well-known old board with 64 squares, the *aṣṭāpada*, set up rules concerning moves *et cetera*, and invented the game, most probably during the 5th century A.D. and of course he called the game by the name of its model "*caturaṅga*" that is "army". The *aṣṭāpada* consisting of eight rows with eight squares each and used since centuries in games, rites, divination and mathematics, and on hand everywhere (sometimes only consisting of eighteen lines scratched in the earth) proved to be the ideal basis to set up a perfect little play-army.

2. *vākyavidām adhikaraṇavicārāḥ*

Bāṇa's seventh of the seven statement concerning king Harṣa's peaceful reign is *vākyavidām adhikaraṇavicārāḥ*, hides a third meaning behind the two obvious ones. These are, first: "Disputes (discourses) concerning *adhikaraṇa* were to be found only among experts (*vid*) of the sentences (*vākya*)". *Adhikaraṇa* is the interesting word here, to be discussed later. The *vākyavid* were, according to the commentator Śaṅkara, the Mīmāṁsakas, followers of a philosophical school occupied with the interpretation of the Veda, whose scriptures were arranged in chapters (*adhyāya*)

13. See Syed 2001.

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and smaller units called *adhikaraṇa*, "section or paragraph". Second, *adhikaraṇa* is "magistracy, court of justice.... a claim", and *vicāra* is ".....consideration, reflection, examination, investigation" (Monier-Williams). Śaṅkara explains *adhikaraṇa* by *viśrāntisthāna*, that is, "place of rest", and explains it by *rājñāṃ ca dharmanirṇayasthāna*, "a place, where kings administer justice". The meaning of Bāṇa's expression is, that during Harṣa's just reign his content subjects did not quarrel anymore so that neither courts (*adhikaraṇa*) nor lawyers had to deal with legal cases, the lawyers being authorities of the subject matter, that is, *vākya-vid*. So, only the Mīmāṁsakas were left to ponder (apply *vicāra*) over the intricacies of the Vedic hymns and their interpretation fixed in *adhikaraṇas*. But Bāṇa cleverly hid a third meaning here, because the word *adhi-karaṇa* (prefix plus noun) can be separated and understood in addition as *adhika-raṇa* (adjective plus noun), meaning "(an)other-battle(s)"; *adhika* being "additional, subsequent, later, surpassing (in number or quantity or quality), superior, more numerous, abundant, excellent, supernumerary, redundant, secondary, surplus" (Monier-Williams), while *raṇa* is translated as "delight, glandness, pleasure, joy.....battle (as an object of delight), war, combat, fight, conflict" (same source). MacDonell gives under *raṇa:* "joy of battle", Boehtlingk/Roth say "Behagen, Ergoetzen, Lust, Freudigkeit.... (Kampflust), Kampf". Ancient India by no means detested war, on the contrary, *raṇa* bears a positive connotation of lust and delight in fight and battle.

The compound itself may be separated in [*adhika-raṇa*]-*vicāra*, the adjective *adhika*, qualifying the word *raṇa* only, to be translated as "discussions on further/future/superfluous battles", or split into *adhika*-[*raṇa-vicāra*], the adjective *adhika* qualifying the compound *raṇa-vicāra*, that is, "further/future/superfluous discussions on battles". But this means splitting hairs, as both expressions hit the mark: The war theoreticians were unemployed, so no discourses on war anymore, please. Śaṅkara says, commenting on *adhikaraṇa: adhikabalo va raṇaḥ saṃgrāma iti kecit*, "(Alternatively,) some (say) that (*adhikaraṇa*) means "more violence", for *raṇa* means battle." *Bala* is "power, strength" and "military force, troops, an army" (Monier-Williams), while *saṃgrāma*, "battle, war, fight, combat" (same source) is a synonym for *raṇa*. The fact that Śaṅkara quotes "some" being of the opinion that Bāṇa hints at battle by hiding *adhika-raṇa* in *adhi-karaṇa*, shows that the commentator himself was not convinced of this interpretation. Anyhow, I am. So, during Harṣa's regnum further discussions on greater, excellent battles were superfluous, and we translate: "(Further) disputes concerning chapters on the Veda/legal cases in courts/further battles (were to be found) among the experts of sentences (only and no longer among lawyers and judges/war-theoreticians and war-enthusiasts)".[14] *Vicāra* is "mode of acting or proceeding, procedure, pondering, deliberation, consideration, reflection, reflecting on,

14. The first member of the compound, *adhikaraṇa*, may be translated as singular or plural, as it is the case with *pārthiva* and *caturaṅga*.

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examination, investigation" (Monier-Williams), and the equivocal word evokes several associations concerning war, encompassing practical and theoretical warfare: reflecting on the arrangement of troops, placement and moving of the army and meditating upon strategy, tactics and manoeuvres.

A glimpse at Śaṅkara's commentary on *aṣṭāpadānāṃ caturaṅgakalpanā* confirms our former translation, as he says: *aṣṭāpadānāṃ caturaṅgaphalakānām*, "*aṣṭāpada* (is) the wooden board for the *caturaṅga*(-game)", and: *catvāry aṅgāni senāyā hastyaśvarathapattayaḥ*, "the four members of the army are elephants, horses, chariots and soldiers". He adds: *teṣāṃ kalpanā racanā*, "their arrangement, (that is, their) setting up".

All three descriptions are constructed similarly: there is a genitive plural followed by a compound of two words, while verbs are unnecessary and therefore missing. We have three words, *pustakarmaṇām, aṣṭāpadānām* and *vākyavidām*, bearing a simple and neutral sense. The first words of the three following compounds, *pārthiva, caturaṅga* and *adhika-raṇa* are connected with war, while the last words *vigraha, kalpanā* and *vicāra* bear the connotation of movement and aggression, concrete as well as intellectual and all connected to army and warfare: The first of the three statements (*pustakarmaṇām*) points to the "didactic model" on the sand-table, the second (*aṣṭāpadānām*) to the game of chess, while the third (*vākyavidām*) aims at theoretical discussions on battlefare, and all three inform us that not only kings and warriors were put in checkmate, but, even warlovers and sandtable-generals. Only terracotta-chessmen on the chequered board were allowed to move anymore.

Bāṇa's style and use of double meanings was not only praised, but sometimes disapproved, so says Mahāmahopadhyāya Kane, the great editor, commentator and translator of the *Harṣacarita:* "One of the greatest flaws of Bāṇa's writings is that they abound in puns on words and recondite allusions." I don't think so. True is, however, that "The reader is often at a loss, amidst the array of double-meaning words, bold and fanciful allusions, to grasp the exact meaning of the author." (p.xxxiii)

3. Fiction, facts and flattery

Harṣavardhana[15] was not at all that peaceful and content as Bāṇa's flatteries want to make us believe. On the contrary, there is not the slightest hint that king Harṣa loosened his harsh grip on the conquered areas or gave up dreams of further expansion. From

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15. Born on June 4th 590 A.D., Harṣa ascended, after the death of his father, the throne at the tender age of 16 and died, most probably, around 647.

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modern historians we learn, that his campaigns and raids continued at least till the year 642: "Harsha's Orissa campaign, which lasted until A.D. 642, thus must have started around 637".[16] So when Bāṇa encountered him, the king was still a warlord, who bore, after almost three decades of strive and combat, the title *sakalottarapathanātha,* "the lord over the whole of Northern region", as the empire of Harṣa embraced almost the whole of Northern India from the river Brahmaputra in the east to Saurāṣṭra and Kathiavar in the West, stretching from the slopes of the Himālayas to the river Narmadā and the Vindhya ranges. But Harṣa's desire to acquire new territories seems to have been insatiable, and he was nevertheless eager to conquer the South.[17]

Bāṇa's seven statements are made in the following context. Before turning to the main subject of his biography, the emperor, Bāṇa gives some autobiographical accounts. Some day in summer all of a sudden he was summoned to the court of Harṣa, who was reported to have not a very good opinion of the famous poet, but now was willing to grant him an audience. Bāṇa immediately performed the necessary auspicious rites for the journey and the dangerous encounter, set out from his hometown Prītikūṭa ("Mountain of joy"), crossed, on the second day of his journey, the Holy Bhāgīrathī, the river Gaṅgā, spent the night in a village called Yaṣṭhigrahaka and reached the camp of Harṣa the next day. The camp, *skandhāvāra,* was installed along the banks of the river Ajirāvatī ("Running rapidly") near the town Maṇitāra in Avadha. According to the grammarian Pāṇini, the Ajirāvatī was the river on which the town Śrāvasti was situated (6.3.119); Śrāvasti is some hundred miles west, slightly north, of Kanauj. The *skandhāvāra* of Harṣa was, therefore, set up at the foot of the Himalaya, which is not surprising, as it was at the height of summer when Bāṇa came to the place, something like a hill resort for king and army. The modern name of the river, by the way, is Rapti, Avadha or "Oudh" being the heart of today's Uttar Pradesh, the area around Lucknow, Allahabad and Varanasi, and, of course, Kanauj, which is today an unimpressive, dusty little town.

The *skandhāvāra* was a makeshift royal residence. Harṣa was in the habit of constantly travelling his dominions, inspecting administration and conditions in the conquered areas and giving orders. He was accompanied by troops, baggage trains, and surrounded by an equipage consisting of servants, soldiers and scientists, including artists, priests, cooks and astrologers, and, of course, the harem.

Bāṇa entered the *rājabhavana,* "the king's house", caught sight of king Harṣa sitting

16. Devahuti p.112.
17. The king of the Deccan, Pūlakeśin, guarded the passes on the river Narmadā so effectually that Harṣa was constrained to retire discomfited, and to accept that river as his southern frontier, see Smith. For details, see Srivastava and Devahuti p.113.

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in state, flocks of subdued kings humbly crouching at his feet, waiting foreign ambassadors at hand, and just before the poet stepped close to greet the king, proudly displaying his *upavīta*, the sacred thread and sign of his brahmanical descent (while the king was, after all, "only" a *kṣatriya*, or descendant of the warrior caste), he imagined the above mentioned statements, not uttering a word (the text says: *samacintayat*). Bāṇa simply addressed king Harṣa with the greeting, *svasti*, "Hail!" or, "Well being for thee!"

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Abstract

Bāṇa's *Harṣacarita* not only contains the oldest Indian reference to the game of chess, *caturaṅga,* played on the 64-square-board called *aṣṭāpada,* but also gives a hint to terracotta chessmen in the phrase *pārthivavigrahāḥ,* which is not only to be rendered as "fights among kings", but as "earthen figures" as well.

Chess, it seems, was played at Harṣa's court in Kanyakubjā/Kanauj in the first half of the 7th century A.D. with earthen figurative chessmen. Before the game *caturaṅga* was invented - so my thesis - the theoreticians of warfare used similar terracottas as means to teach strategy and tactics of battles in sand-tables.

Further, Bāṇa's *adhikaraṇavicārāḥ* can be read as *adhika-raṇa-vicāra* and translated as "thoughts on further battle(s)", pointing at continuous discussions on warfare.

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NATURE OF *RASA* IN KUNTAKA'S *VAKROKTI*-THEORY•

NINA BHAVNAGARI*

Scholars of Sanskrit Poetics are acquainted with the fact that Ācārya Kutanka was the exponent of the theory of *Vakrokti*. He puts the poet or the poetic power (*Kavipratibhā*) in the centre of his poetic theory. He propounds that *Vakrokti* is the essence - the soul of poetry. He states : कवेः कर्म काव्यम् ।[1] The poetic effort itself is poetry. Kuntaka defines poetry in these words : "The alliance of word and sense in a well-knit construction embellished by the poet's peculiar and therefore striking mode of expression, capable of offering aesthetic pleasure to the connoisseur is poetry."[2] The poet obviously acquires his poetic material from the world but gets it arranged in a coherent pattern through poetic genius so as to give us a literary piece which offers aesthetic pleasure by formation of a single sentiment i.e. *rasa*. Kuntaka analyses poetic material (*Varṇanīyavastu*) thus :

"Subjects of poetry described in all their undimmed propriety and beauty of nature are twofold: the sentient and the nonsentient" (III. 5)

"The former can be subdivided into two heads, 'gods etc. and lions etc.' These may be either primary or subsidiary." (III. 6)

"The first is beautified by a spontaneous presentation of emotions like love intensified. The second is made pleasant by a description of animals etc. in a way natural to their species". (III. 7)

'Spontaneous' means the emotions like love should be free from banality and very striking by their fresh flavour. Thus treated, these emotions are raised to the level of sentiments like the erotic (*śṛṅgāra*); because the well-known rule states that the dominant emotion i.e. the permanent mental state (*sthāyī*) itself gets transformed into sentiment (*rasa*)".

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* M.T.B. Arts College, Surat.

1. *Vakroktijīvita* (VJ.) I, ii, *Vṛtti*, Ed. Radheshyam Mishra (Hindi), Chowkhambha Sanskrit Series, Varanasi, 1967.
2. शब्दार्थौ सहितौ वक्रकविव्यापारशालिनि ।
बन्धे व्यवस्थितौ काव्यं तद्विदाह्लादकारिणि ॥ VJ. I.7, p.17.

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"The secondarily sentient ones and non-sentient ones cause delight when they are so described as mostly to conform or promote the rise of sentiments. (*rasa-paripoṣa*)" (III.8)

The actual nature of secondarily sentient beings should thus be depicted so as to serve the purpose of the contextual subject-matter i.e. the poetic material. Their depiction should be capable of contributing to the rise of sentiment i.e. the nourishment of permanent mental state (*sthāyī*). The treatment of the non-sentients should also serve the same purpose. i.e. the kindling of sentiments. Objects like water, tree, spring etc. are seen serving the purpose.[3]

This analysis is entirely traditional. One should mark the words - रसोद्दीपन-सामर्थ्यविनिबन्धनबन्धुरम् .....

Kuntaka affirms that the whole poetic material, either sentient or non-sentient, principal or subordinate, must be presented in such a way that it conforms the delineation of one single *rasa*. He confirms that the entire poetic material must be appropriately employed to achieve the nourishment of the hero's permanent emotion and thereby formation of a single sentiment.

The definition of poetry given by Kuntaka indicates that he follows *dehavādī* tradition of poetic theory. The beautiful mode of presentation which he describes as *vicitrā-abhidhā, vakrokti-vaidagdhya-bhaṅgībhaṇiti* is the essence of poetry. It consists in the departure from the conventional usage of language; it is the indirect use of language[4]. Thus in Kuntaka's view, word and sense are 'the embellished' (*alaṅkārya*) and the mode of presentation is 'the embellishment (*alaṅkāra*)' in

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3. cf. वर्णनीयस्य वस्तुनो विषयविभागं विदधाति-

भावानामपरिम्लानस्वभावौचित्यसुन्दरम् ।
चेतनानां जडानां च स्वरूपं द्विविधं स्मृतम् ॥५॥
तत्र पूर्वं प्रकाराभ्यां द्वाभ्यामेव विभिद्यते ।
सुरादिसिंहप्रभृतिप्राधान्येतरयोगतः ॥६॥
मुख्यमक्लिष्टरत्यादिपरिपोषमनोहरम् ।
स्वजात्युचितहेवाकसमुल्लेखोज्जवलं परम् ॥७॥

अक्लिष्टः कदर्थनाविरहितः प्रत्यग्रतामनोहरो यो रत्यादिस्थायिभावस्तस्य परिपोषः शृङ्गारप्रभृतिरसत्वापादनम्, स्थाय्येव तु रसो भवेदिति न्यायात् ।.....

रसोद्दीपनसामर्थ्यविनिबन्धनबन्धुरम् ।
चेतनानाममुख्यानां जडानां चापि भूयसा ॥८॥

चेतनानां प्राणिनाममुख्यानामप्रधानभूतानां यत्स्वरूपं.....तदेवंविधं तद्वर्णनीयतां प्रतिपद्यते प्रस्तुताङ्गतयोपयुज्यमानम् । जडानामचेतनानां सलिलतरुकुसुमसमयप्रभृतीनामेवंविधं स्वरूपं रसोद्दीपनसामर्थ्यविनिबन्धनबन्धुरं वर्णनीयतामवगाहते । VJ. III 5-8, *Vṛtti*. pp.216-304.

The translation of the text is quoted from K. Krishnamoorthy's edition, 1979.

4. वक्रोक्तिः प्रसिद्धाभिधानव्यतिरेकिणी विचित्रैवाभिधा । VJ. I, 10, *Vṛtti*, p.48

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poetry. In this *dehavādī* system of poetry, the poet and the poetic fact is at the centre. Kuntaka emphasises the peculiarity of poetic form.

Now the question is, where does he establish *rasa* element in his poetic system ? Does he give any clue to answer the question ? Rajendra Nanavati has incidentally made some statements on the issue. He says: '.....he (Kuntaka) accepts *rasa* element in poetry but limits its consideration within the bounds of the poem itself, he does not admit either an actor or a connoisseur, in fact anything which is outside poetry. When he says *rasa* is the development of permanent emotions, he seems to follow Bhaṭṭa Lollaṭa's view.'[5]

It is intended here to list out the arguments or incidental allusions that quite strongly support and substantiate the statement above.

(1) Being among the *dehavādī* poeticians in the traditions of Indian Poetic Theories, Kuntaka does offer a definite, important and vital place to *rasa* element in poetry. The poet must deal with his poetic material in such a way as to achieve the intensification of the hero's *sthāyi* resulting into the relish of *rasa*, aesthetic pleasure on the part of the connoisseur. The point has already been discussed above.

(2) The poetry aims at *tadvidāhlāda* aesthetic delight of the connoisseur and Kuntaka defines *tadvid* as one who is *rasādiparamārthajña*, initiated in the art of enjoying poetry wherein the poetic import is nothing but *rasa* only, and aesthetic delight or *rasāsvāda* is the only objective the best poetry aims to achieve.

(3) In the last part of the first chapter of *Vakroktijīvitam*, Kuntaka describes the three paths of poetry and their appropriate qualities and characteristics. He defines the *Sukumāramārga* (which is the best among three) in these words:

अम्लानप्रतिभोद्भिन्ननवशब्दार्थबन्धुरः ।
अयत्नविरहितस्वल्पमनोहारिविभूषणः ॥
भावस्वभावप्राधान्यन्यक्कृताहार्यकौशलः ।
रसादिपरमार्थज्ञमनःसंवादसुन्दरः ॥[6]

"This *mārga* (*sukumāramārga*) spontaneously emerges from the everfresh poetic genius. It is beautified with pleasing alliance of word and sense. It is endowed with few charming embellishments occurred with spontaneity. The poet who takes resort to this *mārga*, gives priority to natural description of things and emotions. He avoids artificial,

5. 'Kuntaka and Abhinava' in : *Essays on Sanskrit Poetics*, Oriental Institute, Vadodara, 1998, p.55.
6. VJ. I. 25-26

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adventitious and verbos style. Such a beautiful presentation of the poetic content can establish harmony with the heart of the connoisseur who is specifically initiated in the art of enjoying poetic art, who knows *rasa* as the essential import of poetry".

According to Kuntaka, the *sukumāramārga* is the best because he clearly states that this *mārga* is the only one followed by great, reputed poets like Kālidāsa : सुकुमाराभिधः सोऽयं येन सत्कवयो गताः ।[7] This ultimately means that even in Kuntaka's view, only that poet is the best who achieves the aim of *rasāsvāda*, the relish of the sentiment through his striking presentation of peotic material. He has also confirmed this in the fourth chapter :

निरन्तररसोद्गारगर्भसुन्दरनिर्भराः ।
गिरः कवीनां जीवन्ति न कथामात्रमाश्रिताः ।। इत्यन्तरश्लोकः ।[8]

The poetic material containing scintilliating richness of presentation only cannot last long. It must be abundant with qualities and utterances that lead the connoisseur to delectation through the relish of *rasa* spontaneously. Such poetic creations can attain eternity.

4. In Kuntaka's opinion the sentiment (*rasa*) is denoted (*svaśabdavācya*). He does not, of course, discuss the point in detail, because his theory is limited to the bounds of the poet and the poem itself, but incidentally, he gently ridicules and refutes the statement of Udbhaṭa who propounded that *rasa* is *svaśabdavācya*. In the third chapter of *Vakroktijīvita* there is a discussion of *rasavat alaṅkāra*, where he states: यदपि कैश्चिद् स्वशब्दस्थायिसञ्चारिविभावाभिनयास्पदम् इत्यनेन पूर्वमेव लक्षणं विशेषितं तत्र स्वशब्दास्पदत्वं रसानामपरिगत-पूर्वमस्माकम् । ततस्त एव रससर्वस्वसमाहितचेतसस्तत्परमार्थविदो विद्वांसः परं प्रष्टव्याः । किं स्वशब्दास्पदत्वं रसानामुत रसवत इति । तत्र पूर्वस्मिन् पक्षे रस्यन्त इति रसास्ते स्वशब्दास्पदास्तेषु तिष्ठन्तः शृङ्गारादिषु वर्तमानाः सन्तस्तज्ज्ञैरास्वा-द्यन्ते । तदिदमुक्तं भवति- यत् स्वशब्दैरभिधीयमानाः श्रुतिपथमवतरन्तश्चेतनानां चर्वणचमत्कारं कुर्वन्तीत्यनेन न्यायेन घृतपूरप्रभृतयः पदार्थाः स्वशब्दैरभिधीयमानास्तदास्वादसंपदं संपादयन्तीत्येवं सर्वस्य कस्यचिदुपभोगसुखार्थिनस्तैरुदार-चरितैरयत्नेनैव तदभिधानमात्रादेव त्रैलोक्यराज्यसंपत्सौख्यसमृद्धिः प्रतिपाद्येत इति नमस्तेभ्यः ।[9]

"Had *rasa* been denoted through words in poetry, the connoisseur would have enjoyed it immediately after listening to the words like *śṛṅgāra* etc. ! But it is not so. If *rasa* is taken to be *svaśabdavācya*, we shall be compelled to believe that the worldly things can also be enjoyed merely by naming them without making any effort to acquire them. Just utter the word *ghrutapūra* (a sweet made of ghee) and you will enjoy its taste ! So hail to them who state that sentiment is denoted

7. VJ. I. 29a., p.103
8. *Ibid.* IV, 4, *Vṛtti*, p.417
9. *Ibid.* III. 11, *Vṛtti*, p.312

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by the utterance of words ! It is *svaśabdavācya''*.

It is clear from the discussion that Kuntaka does not agree to the *svaśabdavācyatva* of *rasa*.

(5) On various occasions, while elaborating and illustrating the points under discussion, Kuntaka substantiates the view that *rasa* is nothing but the state of nourished and intensified permanent emotion (*sthāyī*) of the protagonist. There are more than one examples of which some are listed here. In the first chapter, the beauty of sense is being illustrated and elaborated. He quotes from *Raghuvaṁśam :*

तामभ्यगच्छद् रुदितानुसारी मुनिः कुशेध्माहरणाय यातः ।
निषादविद्धाण्डजदर्शनोत्थः श्लोकत्वमापद्यत यस्य शोकः ॥ (xiv.70)

The beauty of meaning relies upon *rasaparipoṣa,* the intensification or nourishment of *rasa,* which only can bring about *āhlāda* i.e. aesthetic pleasure. Thus *rasaparipoṣakatva* is the determinant of *tadvidāhlādakāritva.* Kuntaka's elaborate explanation of the verse runs thus : अत्र कोऽसौ मुनिवाल्मीकिरिति पर्यायपदमात्रे वक्तव्ये परमकारुणिकस्य निषादनिर्भिन्नशकुनिसंदर्शनमात्रसमुत्थितः शोकः श्लोकत्वमभजत यस्येति तस्य तदवस्थजनकराजपुत्रीदर्शनविवशवृत्तेरन्तःकरणपरिस्पन्दः करुणरसपरिपोषाङ्गतया सहृदयहृदयाह्लादकारी कवेरभिप्रेतः ।[10] "Here, 'who was this sage ?' 'He was Vālmīki'; the word Vālmīki was enough, but Kālidāsa adds the detailed adjective clause, "the sage who was compassionate, who was deeply moved by the sorrow caused at the mere sight of the bird pierced by the hunter, and whose sorrow was expressed spontaneously in the form of a *śloka,*" such a sensitive sage would definitely be moved to see the tragic plight of Sītā, would be plunged into sorrow and the feeling of sorrow would be intensified to take the form of *karuṇa rasa,* such tragic sentiment would lead to aesthetic pleasure. Hence this specific adjective clause. This is an example of *Karuṇarasa.* The word करुणरसपरिपोषाङ्गतया..... confirms our assumption that in Kuntaka's poetic theory, *rasa is sthāyibhāva* nourished or intensified.

6. Kuntaka has classified *vakrokti* in many types. *Vākyavakratā* is one of them. To explain *vākyavakratā* he gives more than one illustrations. As is his practice, he explains each one in detail. His observations on *rasa* are revealed here also. The example of *Vīrarasa,* the heroic sentiment, is elaborated thus :

लोको यादृशमाह साहसधनं तं क्षत्रियापुत्रकं
स्यात्सत्येन स तादृगेव न भवेद् वार्ता विसंवादिनी ।
एकां कामपि कालविप्रुषममी शौर्योष्मकण्डूव्यय-
व्यग्राः स्युश्चिरविस्मृतामरचमूडिम्बाहवा बाहवः ॥

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10. VJ. I. 9, *Vṛtti,* p.42

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अत्रोत्साहाभिधानः स्थायिभावः समुचितालम्बनविभावलक्षणविषयसौन्दर्यातिशयश्लाघाश्रद्धालुतया विजिगीषोर्वैदग्ध्यभङ्गीभणितिवैचित्र्येण परां परिपोषपदवीमधिरोपितः सन् रसतामानीयमानः किमपि वाक्यवक्रभावस्वभावं कविकौशलमावेदयति ।[11]

The verse quoted above describes Rāvaṇa's loud thinking about Rāma's valour and his own firm decision to fight against him. He contemplates: "Rāma might be really just like what people describe, i.e. adventurous; being the son of a *Kṣatriya* lady, and they might not be wrong. But let my arms be alert for a moment, for they have forgotten the war against the army of gods to eliminate the itching caused by my hot valour to defeat my enemy." There is a peculiar mode of presentation here. People admire Rāma's valour and his impressive, adventurous personality. But Rāvaṇa is not frightened. He expresses his firm determination to defeat that powerful enemy. Rāvaṇa's *utsāha*, energy is permanent mental state. The *ālambana vibhāva* of this *utsāha* is Rāma. Through the peculiar mode of expression, *vākyavakratā*, here *utsāha* soars to the pick of intensity and attains the climax. It is the heroic-*vīrarasa*. The words- उत्साहाभिधानः स्थायिभावः..... परिपोषपदवीमधिरोपितः etc. once again support our assumption that for Kuntaka *rasa* is the intensification of *sthāyī*.

7. To offer an example of *vipralambhaśṛṅgāra*, on the same line, Kuntaka quotes a verse from *Vikramorvaśīyam* which depicts the lamentation of Purūravas in the separation from Urvaśī:

तिष्ठेत्कोपवशात्प्रभावपिहिता दीर्घं न सा कुप्यति
स्वर्गायोत्पतिता भवेन्मयि पुनर्भावार्द्रमस्या मनः ।
तां हर्तुं विबुधद्विषोऽपि न च मे शक्ता पुरोवर्तिनीं
सा चात्यन्तमगोचरं नयनयोर्यातेति कोऽयं विधिः ॥ (*Vikramorvaśīyam*, IV. ii)

अत्र राज्ञो वल्लभाविरहवैधुर्यदशावेशविवशवृत्तेस्तदसंप्राप्तिनिमित्तमनधिगच्छतः प्रथमतरमेव स्वाभाविकसौकुमार्य-संभाव्यमानम् अनन्तरोचितविचारापसार्यमाणोपपत्ति किमपि तात्कालिकविकल्पोल्लिख्यमानमनवलोकनकारणमुत्प्रेक्षमाणस्य तदासादनसमन्वयासंभवान्नैराश्यनिश्चयविमूढमानसतया रसः परां परिपोषपदवीमधिरोपितः ।[12]

The king is distressed in separation as Urvaśī has turned into a creeper and she is nowhere to be seen ! He tries to guess reasons why his beloved should have abandoned him suddenly. At the very second moment, he assures himself, that her anger does not last long. Shoud she have flown away to heaven ? but that is also not possible because her love for him is so deep and intense. Again, the demons dare not abduct her before his own eyes ! (What would have happened ?) Yet it is a fact that she has disappeared ! What a fate !'

11. VJ. III. 4, *Vṛtti*, p.295
12. VJ. III. 7, *Vṛtti*, p.299

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Here the *vipralambhaśṛṅgāra* is intensified through a myriad of emotions : The king is helpless and perplexed because among so many reasons of his beloved's abandoning him, not a single is convincing. He is in distress because he is a human being and cannot see his beloved damsel who is endowed with divine powers ! He is keen to have a glance of her and yet finds no means so he is confounded. No hope left ! His despair results into mental derangement. The pellucid depiction of such complex emotions raises his *rati* to the climax of *vipralambhaśṛṅgāra rasa*. The example of such complex variety of emotions reminds us of Daṇḍin who says : रतिः शृङ्गारतां गता । रूपबाहुल्ययोगेन.....[13] but again Kuntaka's elaboration - राज्ञः..... रसः परां परिपोषपदवीमधिरोपितः.....etc. Once again clearly confirms that in Kuntaka's opinion the *sthāyī* of the protagonist in the intensified form itself is *rasa*. He does not seem to support Daṇḍin or Bhavabhūti[14] who propound that even the variety of complex emotions raises the *sthāyī* to the state of *rasa*.

8. Last but not the least the clue which leads one to conclude that even Kuntaka keeps *rasa* element in focus while propounding his own poet-oriented, *dehavādī* theory, is his treatment of *saubhāgya guṇa* (grace). In the last part of the first chapter of *Vakroktijīvitam* he describes two qualities which are common and utmost necessary to all the three paths of poetry namely, *sukumāra, vicitra* and *madhyama,* we can say they must be the essential qualities of any poem worth the name. They are *aucitya,* propriety and *Saubhāgya* loveliness, grace, charm, bewitchingness. *Aucitya* is proper description, that by which the nature of the object is properly fostered. *Saubhāgya* is the ultimate, inevitable quality of poetry which is defined as follows :

इत्युपादेयवर्गेऽस्मिन् यदर्थं प्रतिभा कवेः
सम्यक् संरभते तस्य गुणः सौभाग्यमुच्यते ॥
सर्वसंपत्परिस्पन्दसंपाद्यं सरसात्मनाम् ।
अलौकिकचमत्कारकारि काव्यैकजीवितम् ॥[15]

'The quality of that peculiarity of the poetic expression is called *Saubhāgya* for the achievement of which the creative power of the poet properly activates itself among this class of wide-ranging material and which is achieved by a scintillating richness (of all

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13. *Kāvyādarśa,* II, 281
14. एको रसः करुण एव निमित्तभेदाद्
भिन्नः पृथक्पृथगिवाश्रयते विवर्तान् ।
आवर्तबुद्बुदतरङ्गमयान्विकारा-
नम्भो यथा सलिलमेव तु तत्समग्रम् ॥ *Uttararāmacaritam* III, 47
15. VJ. I. 55-56, pp.160-161

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materials), which causes aesthetic experience to the connoisseurs, and which alone is the life (the ultimate goal) of poetry'.

What is the principal objective of poetry ? What does the poet want to achieve through the scintillation of the entire poetic material ? The reply Kuntaka gives is clear : the relish of poetic delight to the persons who have aesthetically receptive hearts, to the connoisseurs (*sahṛdayas*) whom he distinguishes with the adjective - सरसात्मनाम्- The treatment of poetic material will be successful only when it makes such सरसात्मन् connoisseurs experience aesthetic delight through the relish of *rasa,* namely, intensified permanent emotion of the protagonist.

The allusions, illustrations and discussions rendered above lead to the following conclusions pertaining to the nature and status of *rasa* in Kuntaka's poetic theory :

1. Kuntaka's poetic theory of *Vakrokti* is poet-oriented keeping poem at the centre. So he does not and need not enter into the analysis of *rasānubhava,* the aesthetic expereince on the part of the connoisseur, as he is outside the poetry. Yet *rasa* remains to be into focus, to be the ultimate goal of each and every poetic creation and the poet's treatment of his entire poetic material.

2. He offers a vital, significant status to *rasa* element as the single sentiment of the hero.

3. *Rasa* is nothing but the permanent emotion (*sthāyi*) of the protagonist in its intensified state, nourished form. It is the embellished (*alaṅkārya*) and *vakrokti* is the embellishement (*alaṅkāra*) in poetry, and such concept following Bhaṭṭa Lollaṭa or Daṇḍin suits to Kuntaka's theory which moves within poetry itself. The poet creates *Uktivaicitrya* by the *spanda,* vibration or throb of his poetic genius, thereby he gives peculiar, beautiful, delectable, fresh arrangement of all the poetic elements, achieves nourishement of *sthāyī* called *rasaparipoṣa.* This whole poetic process of creation is the manifestation of his poetic power which is the part and parcel of his personality and ultimately it fulfills the aim of *tadvidāhlāda,* aesthetic pleasure of the connoisseur who is particularly initiated in the art of enjoying poetic art.

This confirms the statement of Prof. R.I. Nanavati that "In Sanskrit Poetics we have no less than five (or six) independent schools trying to explain the nature of this aesthetic peculiarity of poetic verbal structure. The ultimate aesthetic principle, of course, being one, the five schools present only so many different points of viewing that single principle".[16]

16. His article 'Alaṅkāra And Rīti As the Ultimate Poetic Principles'. In: *Essays on Sanskrit Poetics', op.cit.,* p.1

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MANUSCRIPT LIBRARIES AND COLLECTIONS IN INDIA DURING THE EARLY BRITISH RULE

AMRUTA NATU*

In A. D. 1866 the Government of Bombay Presidency started a search programme for Sanskrit manuscripts. The eminent scholars like Prof. George Bühler, Prof. F. Kielhorn, Prof. R. G. Bhandarkar, and Prof. Peter Peterson carried out the searches in the Bombay Circle. The Bombay Circle included, besides the Presidency of Bombay, Rajputana, Central India and the Central Provinces. This paper is based on the data available from the 'Reports on the searches' presented by these scholars to the Government.

A) "The books are kept in a dark underground vault, on stepping out of the light into which you can see nothing..... As the eye becomes accustomed to the darkness, a hole in the wall is seen, which is the entrance into the smaller and darker vault where the books are kept. We gathered below one window which from above lets light into this strange place, and the keeper of the books *grudgingly* handed out one after another for our inspection."[1] These words of Prof. Peter Peterson describe in most illustrative manner one of the manuscripts collection in Pāṭaṇa in A. D. 1882.

Prof. Bühler and Prof. Peterson both had mentioned the fact that many manuscripts libraries were in the hands of people who do not know Sanskrit at all.[2] Even today, especially regarding many private collections the situation continues to be the same.

Many a time, only hand-lists of collections were available. There were no standard catalogues. Bühler has mentioned that the learned Pandits were just as ignorant about the contents of such libraries as he himself was and it was of much trouble even for those Pandits to extract manuscripts from these *gartas* (sic). He further states that the important and ancient manuscripts may remain hidden in such collections.[3]

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* 101, D-7, Sundarsahawas, Near Suncity, Simhagad Rd., Pune-411 051.

1. Peterson, Peter, "Detailed Report of Operations in Search of Sanskrit Manuscripts in the Bombay Circle", August 1882-March 1883. Extra Number of *The Journal of the Bombay Branch of the Royal Asiatic Society,* Trübner & co., London, 1883, p. 57.
2. Bühler, George, "Detailed Report of a Tour in Search of Sanskrit Manuscripts made in Kashmir, Rajputana, and Central India", Extra Number of The *Journal of the Bombay Branch of the Royal Asiatic Society,* Trübner & co., London, 1877, p. 28.
3. *Ibid.*

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It was a common experience for the Bombay scholars that whenever the permission to make a catalogue was given by the owner or the royal office, the promise was abandoned as soon as the scholar quits the place.[4] Peterson has mentioned "On enquiring after the copies of the selected works ordered for Dr. Bühler, I was informed that they had been duly made and stowed away no one knew where."[5] There were of course, like Dewan of Cambay and Maharana of Oodeypore (sic), exceptions to this non-co-operation. The Maharana of Udaypur took a personal interest in the work and constantly removed obstacles placed in the way. He sometimes allowed Peterson to take as many of the royal manuscripts as he desired to Bombay where he could consult them at leisure.[6]

The Free Public Library in Jeypore (sic) was founded by the Maharaja of Jeypore at the instigation of a medical missionary. Peterson opined that there was no parallel to this library in Bombay. There was a fair collection of Sanskrit manuscripts in this library.[7] The Royal Library of the Maharaja of Jaipur, however remained unseen by the people connected with the Bombay search programme. Prof. Bühler and Prof. Bhandarkar were not allowed to see the collection while Dr. S. R. Bhandarkar saw only 25 bundles of manuscripts.[8]

Jain Bhandāra-s (sic) were made up of several collections belonging to different individuals. R. G. Bhandarkar went through numerous lists of manuscripts in various such Bhandāras. Those lists were prepared in *Saṁvat* 1751, Sam. 1836, Sam. 1853, Sam. 1860, Sam. 1861 and so on. He has noted that the lists give us an insight into the manner in which these Jain Bhandāras have grown up.[9]

Bühler made a trip to Kashmir, Rajputana, and Central India in A. D. 1875. A few small libraries existed at places like Sopur, Ilâmâbâd (sic) - Anantnâg (sic) and Bâramûla (sic) in Kashmir.[10] He pointed out that all the Sanskrit-speaking Pandits, as well as some of the traders and officials in Kashmir, possess larger or smaller libraries. He has listed

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4. Johnson, Donald Clay, "On the Origins of the Bhandarkar Oriental Research Institute Library", *Annals of the Bhandarkar Oriental Research Institute*, Vol. LXIX, Bhandarkar Oriental Research Institute, Pune, 1988, p. 119.
5. Peterson, Peter, *op.cit.*, p. 45.
6. *Ibid.*, p.58, and Johnson Donald Clay, *op.cit.*, Vol. LXXI, 1990, p.79.
7. Peterson Peter, *Ibid.*, p.3 footnote.
8. Johnson, Donald Clay, *op.cit.*, Vol. LXXIV, 1993, p. 170.
9. Bhandarkar, R. G., *Report on the Search for Sanskrit Manuscripts in the Bombay Presidency during the year 1883-84*, The Government Central Press, Bombay, 1887, p. 7.
10. Bühler, George, *op.cit.*, p. 28.

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names of 22 Pandits who were stated to be the possessors of the most considerable collections.[11] He has classified Kashmirian manuscripts in 4 categories - 1) *Bhūrja* manuscripts 2) *Śāradā* Paper manuscripts 3) Paper *Devanāgarī* manuscripts copied in Kashmir and 4) Paper *Devanāgarī* manuscripts imported from India proper.[12]

Bühler mentioned one incident, which cannot be regarded as common but certainly is a darker side of the picture. He heard of a work which, after being considered to be lost was recovered from a manuscript found by a Pandit in the ceiling of his house, to which it has been nailed in order to keep the rain out.[13] Sometimes manuscripts were not well arranged within the collection and it was with difficulty that any desired manuscript could be found.[14]

Prof. Bühler and Prof. Kielhorn were the pioneer collectors in the search programme. They experienced resistance and non-co-operation from the public. Prof. Peterson and Prof. Bhandarkar worked at the second stage of the programme. Peterson has mentioned changing attitude of the people. Prof. S. R. Bhandarkar who succeeded them, experienced different attitudes towards their collections between the Jain and Hindu communities. His keen observation of the situation points out the importance of being informed. Within the Jain community there were many people who had travelled widely and Bhandarkar felt that upon seeing the work done in places such as Bombay to make libraries more accessible had promoted the willingness of the Jains to make their library resources available to anyone. At Alwar, however, he found the Hindu community willing to show their libraries. The reason was obvious. Peterson had published a Catalogue of the Alwar Maharaja's library in 1892. Usefulness of it made positive impact on the Hindu community.[15]

B) Mere collection of manuscripts or books cannot be termed as library. A place where manuscripts or books are collected, preserved, used and copies are supplied to scholars to use them for the sake of knowledge is a library in real sense of the term. In this sense, it can be said that there were very few libraries but more collections of manuscripts in India during the early British Rule. It seems that a century of colonisation has resulted into draining of the old scholarship and these collections were mere remains of it scattered

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11. *Ibid.*, p. 27.
12. *Ibid.*, p. 29.
13. *Ibid.*, p. 30.
14. Bhandarkar, R. G., *op.cit.*, p. 7.
15. Johnson, Donald Clay, *op.cit.*, 1993, p. 172.

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here and there. (See Peterson's remarks on the old city of Pushkar)[16]

Readers, researchers search for the books or manuscripts for the sake of their study but it seems that, sometimes books and manuscripts set out in search of readers and relocate themselves accordingly. Manuscripts were, at not a few places, in possession of such people who were not interested in Sanskrit. And then the manuscripts were relocated in the Government collection through the government search programme. (See Peterson's remarks.)[17]

The nation was on the verge of social reforms. The dawn of political reforms was yet to come. Prolegomena to all this can be seen in growing awareness regarding the manuscripts, one of the national treasures. E. I. Howard, Director, Department of Public Instruction, Bombay, secured a grant of 2000 rupees in 1862 from the government in order to allow Martin Haug, Professor of Comparative Philology at the Deccan College, Pune, to collect manuscripts. The Times of India published on June 9 and 23, 1864 Haug's report of the trip and stirred the flames of controversy; spearheading the attacks in the newspaper war of words was an individual using the *nom de plume,* Bibliophilus. He wrote "…. how will they (new generation of native scholars) regard the present generation of Parsis, Brahmans, or Jains, if they have to go to Berlin, or Paris, or Copenhagen, to consult the genuine manuscripts of their ancestral literature? Let us beware of the curses of posterity. ….. The manuscripts might be better cared for under the charge of the Asiatic Society or in a public library….."[18]

Pandit Radhakrishna from Lahore was one of the first natives who allowed Europeans to see his collection of manuscripts, and he first addressed the Government of India recommending that the Sanskrit manuscripts preserved in native libraries should be

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16. Peterson, Peter, *op.cit.*, p. 46, "Through paths ankle deep in dust, and followed by crowds of Brahmin beggars, as ignorant as they were shameless and importunate, we visited one deserted shrine after another, asking ourselves how long the best minds of India will be content to leave the religion of the common people a prey to the obscene creatures who fatten on it as a means of livelihood. To the Hindu who respects his country's past, and who hopes in her future, I can conceive of no sight more distressing than the present condition of the Holy city, Pushkar."
17. *Ibid.*, pp. 47-48, "A solitary Brahmin, unable to read the torn leaves of the commonplace stuti which he carries about with him as a charm, is all, so far as I could find, that is left of the learning and culture of the city where the scribe Jallaṇa, the son of Śivadeva, wrote centuries ago on Palm-leaf, the copy of Nami's commentary on Rudraṭa, which from Chittore was carried to Pathan, and now lies in the library of the English College at Poona."
18. Johnson, Donald Clay, *op.cit.*; Vol. LXIX, 1988, pp. 115-116.

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catalogued.[19] As a result on 3rd November 1868 the Government of India issued an order regarding setting aside 25000 Rupees to be used annually for the collection and the preservation of Sanskrit manuscripts.[20] Whitley Stokes, Secretary to the Government of India had recommended - "To Europe we should send original manuscripts, copies, extracts ...etc."[21] This approach of Government staff created great difficulty for the collectors in convincing the possessors of manuscripts that Government had no other object than the preservation of Sanskrit Literature. There was lack of interest on the part of Indians to co-operate in the programme. So in 1870 Government had to declare that the titles would remain in India.

C) During their search for manuscripts, Prof. Bühler, Prof. Kielhorn and Prof. R. G. Bhandarkar prepared lists of manuscripts possessed by several private libraries. However, many of the entries in these lists are now obsolete since it is hardly possible to trace out, after more than 125 years, what has happened with these collections. I think, therefore, it is desirable for every manuscript project to update the data available with it regarding private collections from time to time. Preservation of manuscripts that are in private possession solely depends on the public awareness. Thanks to the efforts of various manuscript collectors that today thousands of manuscripts are safe in manuscript libraries. There is a danger, however, that they could become inaccessible or even perish due to unhealthy and untoward politics, which such institutes are often prone to.

This paper cannot be completed without saying a few words, though not within the scope of the present topic, about kind of co-operation between these Bombay scholars. As mentioned earlier, Prof. Peterson tried to secure copies of manuscripts ordered by Prof. Bühler from various libraries in Gujarat. After Prof. Bühler and Prof. Kielhorn retired, since August 1882 the operations in search of Sanskrit manuscripts were under the joint charge of R. G. Bhandarkar, Professor of Oriental Languages, Deccan College, Poona and Peter Peterson, Professor of Sanskrit, Elphinstone College, Bombay. Usually the Bombay Professor was in charge of search in the Northern part of the Presidency and Poona Professor was in charge of the Southern part. However, Prof. Kielhorn had mentioned in his reports[22] of his tour to Southern part that there were no very old libraries and that

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19. Bühler, George, *op.cit.*, p.2 foot note.
20. Johnson, Donald Clay, *op.cit.*, Vol. LXIX, p. 116.
21. *Ibid.*, p. 117 and Gough, Archibald Edward (Ed.), Papers relating to the Collection and Preservation of the Records of Ancient Sanskrit Literature in India, Office of Superintendent of Government Printing, Calcutta, 1878, p. 40.
22. Gough, Archibald Edward, *Ibid.*, 1878, pp.53-59 and pp.61-63.

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Gujarat was far richer in Sanskrit libraries than the Southern part of the presidency. So Prof. Bhandarkar and Prof. Peterson both decided that it should be open to either of them at any time, after mutual consultation, to push the objects of the search in any part of the Circle as per their convenience.[23]

23. Peterson, Peter, *op.cit.*, p.1.

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म. विनयसागर : थोडी लघु कृतियाँ

बोथरा अनीता : प्राकृत जैन साहित्य में उपलब्ध 'धर्म' शब्द के विशेष अर्थो की मीमांसा

अङ्क : ४३, २००८

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मुनि सुयशचन्द्र-सुजसचन्द्रविजयौ : श्री मुनिरत्नसिंहविरचित चार लघुस्तोत्रकाव्यो

म. विनयसागर : श्रीसिद्धिविजयरचित श्रीविजयदेवसूरि भासद्वय

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शर्मा क्षेमचन्द : वैदिक मोक्ष की सार्वभौमिकता
शास्त्री श्रीवत्स : यजुर्वेद में जीवन मूल्य
शर्मा कँवल किशोर : ब्रह्मचर्यादि आश्रम-धर्मो की सार्वभौमिकता
चन्द्रमौलि ए. बी. : वैदिक शिक्षा-पद्धति की सार्वभौमिकता
लांगायन रामभक्त : वैदिक जीवन-मूल्यों से वैयक्तिक अभ्युदय एवं समरसता सम्भव
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जैन ज्योतिप्रसाद : मथुरा के जैन शिलालेख
तिवारी मारुतिनन्दन : उत्तर प्रदेश की जैन कला
रस्तोगी शैलेन्द्रकुमार : गुफाओं में जैनमूर्ति वैभव

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मुनि विकर्षसागर : सत्त्वेषु मैत्रीं गुणिषु प्रमोदं
आचार्य समन्तभद्र : श्रीपार्श्वजिनस्तवन
तिवारी मारुतिनन्दन : तीर्थंकर पार्श्वनाथ की मूर्तियाँ
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जैन कुन्दनलाल : प्रभु पार्श्व की कलापूर्ण प्रतिमायें

ફાર્બસ ગુજરાતી સભા ત્રૈમાસિક, ફાર્બસ ગુજરાતી સભા, કીર્તન કેન્દ્રને ત્રીજે માળે, ઉત્પલ સંઘવી સ્કૂલ સામે, સંત જ્ઞાનેશ્વર માર્ગ, જુહુ, મુંબઈ-૪૦૦ ૦૪૯.

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वर्ष : ५८, अङ्क : ३-४, जुलाई-दिसम्बर २००७

मिश्र प्रवीण कुमार : बिहारी-सतसई के एक दुर्लभ संस्कृत अनुवाद (आर्यागुम्फ-टीका) का समीक्षात्मक अध्ययन

सिंघवी प्रमिला : मध्यकालीन वागड़ के लोकजीवन में गवरीबाई का अवदान : एक ऐतिहासिक अध्ययन

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वर्ष : ३२, अङ्क : ४, २००७

मिश्रः विन्ध्येश्वरीप्रसाद : शिवतत्त्वम्

उपाध्यायः रामराज : प्रायश्चित्तनिरूपणम्

झा कमलेश : काश्मीरशैवागमं वीरशैवागमश्चाधिकृत्य शिवशक्त्योस्तुलनामूलकमध्ययनम्

विद्यालंकार संगीता : सांख्यदर्शन का सृष्टिसम्मत वैज्ञानिक दृष्टिकोण

द्विवेदी इच्छाराम : श्रीमद्भागवतमहापुराणस्थ मानवाधिकार परिकल्पना

श्रीवास्तव अर्चना : वाल्मीकि रामायण में प्रतिपादित कर्म की अवधारणा

CC-0. Agamnigam Digital Preservation Foundation, Chandigarh.

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वर्ष : ६०, अङ्क : ३-४, दिसम्बर-मार्च, २००५-२००६ ई.

द्विवेदः जानकीप्रसाद : कातन्त्रीयव्याख्यासु पतञ्जलिमतानां प्रामाण्यम्

शुक्लः भगवतशरण : अधिकारसूत्रसमीक्षा

मिश्रः रमाशङ्कर : संस्कृतवाङ्मये नारीणां वैशिष्ट्यम्

सिन्हा प्रीति : पञ्चमो नाट्यवेदः

शर्मा शिवराम : ध्वन्यर्थविचारः

मिश्रः विनोदप्रसाद : श्रीमद्वाल्मीकीयरामायणानुसारं श्रीलक्ष्मणस्य चरितम्

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वर्ष : ७३, अङ्क : ११, नवम्बर २००७

डॉ. लक्ष्मीनारायण भर्ग अमृत महोत्सव

अग्रवाल राजेन्द्रकृष्ण : डॉ. लक्ष्मीनारायण गर्ग : समग्र

वर्ष : ७३, अङ्क : १२, दिसम्बर २००७

सिन्हा सुरेखा : रुचि और ध्यान

सहगल सुधा, कुलश्रेष्ठ नेहा : 'रास' में निहित लोकसंगीतात्मक तत्त्व

पाठक निशा : संगीत की उच्च शिक्षा : बदलते सन्दर्भ और आयाम

तेलंग उल्हास : भारतीय शास्त्रीय संगीत के जीते-जागते 'ज्ञान-कोश' पं. कृष्णनारायण तैलंग (भैया-साहब)

वर्ष : ७४, अङ्क : २, फरवरी २००८

कानूनगो आलोका : उड़ीसा के मन्दिरों की नर्तकियाँ : महरियां

राय अरुणकुमार : मानव-जीवन में लोक-संस्कार-गीतों की उपादेयता

खरे आशा : मालवी लोकगीत : शास्त्रीय सांगीतिक अध्ययन

रावत निशा : पुराणों में तंत्री-वाद्य का महत्त्व एवं 'टोनल क्वालिटी' का विस्तृत क्षेत्र

वर्ष : ७४, अङ्क : ३, मार्च २००८

शर्मा जया : नए प्रसार-माध्यम द्वारा संगीत का वर्तमान स्वरूप

कुमार राकेश : घुड़सार से ब्रह्मांड तक : गीतों की ध्वन्यंकन-तकनीक

कोठारी कोमल : महिला-लोकगीतों की प्रक्रिया एवं पृष्ठभूमि

दास रायकृष्ण : बनारसी महफिल

पाठक निशा : वैदिक वाङ्मय में सांगीतिक वाद्यों का चिन्तन

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वर्ष : ७४, अङ्क : ५, मई - २००८

कुलकर्णी मनीषा : ख्याल - गायन में बन्दिश
शर्मा ऋचा : भील-संगीत
सक्सेना गीता : उ. गुलामअली खाँ का घराना

वर्ष : ७४, अङ्क : ७, जुलाई २००८

पंचाक्षरी भालचन्द्र : आधुनिक 'ध्रुवपद' का जनक प्राचीन मध्यकालीन 'प्रबन्ध'
निगम सरिता : आधुनिक हिन्दुस्तानी संगीत में मूर्च्छना की प्रासंगिकता
बंसल दीप्ति : गुरु-पूर्णिमा- 'गुरु-चरनन पै सरबस वारूँ'

वर्ष : ७४, अङ्क : ८, अगस्त २००८

पाठक निशा : धर्म और संगीत का अन्तःसम्बन्ध
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सागर प्रेम : रोजगार प्राप्त करने-हेतु संगीत एक बहुआयामी
श्रीवास्तव रानी : संगीत के प्रचार - प्रसार में दूरदर्शन का योगदान
पं. रविशंकर : किशन महाराज एक सिंह पुरुष थे

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वर्ष : ३९, अङ्क : ३, वि.सं. २०६४

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अधिकारी कृष्णपद दास : शाब्दबोधप्रक्रिया
श्रीयोगमाया पराम्बा : राष्ट्राभिवर्धनसूक्ते राष्ट्रोन्नत्युपायः
शास्त्री सुभाष चन्द्र : वैदिकवाङ्मये धर्मस्वरूपम्
सिन्हा प्रीति : पञ्चमो नाट्यवेदः
दाशः अच्युतानन्द : प्रतिभास्वरूप - विमर्शः

वर्ष : ३९, अङ्क : ४, वि.सं. २०६५

त्रिपाठी राधावल्लभः : अथर्ववेदे वेदान्ततत्त्वम्
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REVIEWS

***Sri Babaji : Immortal Yogi of the Himalayas* by Remola Butalia, Pub. by Vasudeva Kutumbakam, Chief distribution Motilal Banarsidass Publishers Pvt. Ltd., Delhi, First Edition 2007, pp.188, Price : 295/-**

The book starts with homage to different *Devatās* and *Devīs* which shows respect towards God. The authoress' search for Truth led her to a continued tryst with the Himalayas and the blessings of many *santa-mahātmās*. As a practitioner in the tradition of the Himalayan yogīs, she is known as Sriji. The book is divided into twenty five chapters, mainly about *Siddha Darśana, Sādhanā, Dhyāna, Bhramaṇa, Svādhyāya* and *Tapasyā* and also contains some photographs of *Santas* and an Introduction by Sri Gorakh Babaji.

It is mentioned in the Introduction that the *mahimā* of Sri Babaji is *apāra* i.e. beyond comprehension. He has many forms, both *nirākāra* and *sākāra*. He had spent his life in *tapasyā, sādhanā, japa, anuṣṭhāna*, establishing *mandiras* and spreading his spiritual light everywhere. His simplicity, the depth of his wisdom and the intensity of his *sādhanā* is beyond mere words. Sri Babaji had reached the highest state of *siddhatva* and *ṛṣitva*. He was known as *niṣkāma karma yogī* and *sāṅkhya yogī*.

It is difficult to mention about his life-time *bhramaṇa*. The book is about Kumaon, where *samudramanthana* by *Devās* and *Dānavās* took place. The life-span of Sri Babaji is believed to be of two centuries i.e. 18th century to the first quarter of the 20th century. He visited numerous *dhāmas* and *tīrthasthānas* including Manasarovara, Nepal, Tibet, China etc. He stayed in *Kuṭīs, gufās, jalagufās* in *siddhatva-svarūpa*. He had done *sādhanā, tapasyā*, and longer *parikramā* also. The Himalayas are the land of *Deva-Devīs, ṛṣi-munis*, so, *Uttarākhaṇḍa* is known as *devabhūmi*.

The book is about these sacred places and events which show the path of *jñāna-yoga, karma-yoga, bhakti-yoga, prema-yoga* and *tapasyāyoga*. Sri Babaji's *darśana* is of *satya, saralatā* and *Prema*. He believed in simple living and high thinking. He said that *sanātana-dharma* is a religion of worship. His *ācāra* and *vicāra* were same. He did not resort to oratory. He worked towards the spiritual upliftment of all who contacted him and inspired yogīs through the power of his thought vibrations.

The book is devoted to the spiritual yogīs and it gives detailed information about

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sacred places of Indian pilgrimage and Himalaya and is very useful for the seekers of 'Truth'. The author has cautioned that even at a sacred place, all do not experience the same energy. It is directly connected with the individual's Vibrations and his *bhāva*. For one without purity of purpose it can, at the best, be a pleasurable experience; a change from his usual state of mind, nothing more.

We congratulate the authoress for taking the readers into her journey of seeking truth. The printing, references, photographs are all of highest quality.

Usha Brahmachari

Oriental Insitute,
The M.S. University of Baroda,
Vadodara.

***Tarkasaṁgrahaḥ* of Annambhaṭṭa - with *Svopajña-Dīpikā*, Hindi translation and commentary by Kansiram & Sandhya Rathore, Pub. Motilal Banarsidass, Bunglow Road, Jawahar Nagar, Delhi-110 007, paperback edition, pp.Ix+284, Price Rs.195/-**

The present book is an excellent *Vaiśeṣika* treatise of Annambhaṭṭa called *Tarkasaṁgrahaḥ* and an auto-commentary thereon called *Dīpikā*, which two, taken together, are often designated as *Annambhaṭṭīyam*. The work under review is with Hindi translation and Hindi commentary by Kansiram and Sandhya Rathore.

The main aim of compiling the text as stated in the opening verse of the text is to enable beginners to easily understand the dialectical philosophy. The work deals with seven *padārthas* (categories), viz. i) *dravya* (substance), ii) *guṇa* (quality), iii) *karma* (action) iv) *sāmānya* (generality), v) *viśeṣa* (particularity), vi) *samavāya* (inherence), and, vii) *abhāva* (non-existence). The book is decorated with preface (*Prākkathana*, pp. xv-xvi), by Kansiram and Sandhya Rathor. After the preface, there is a detailed Introduction (*Bhūmikā*, pp.xvii-ix) in Hindi, which presents a critical analysis of the subject matter of the present text. The whole subject matter has been divided into sixty four sections and each section has further sub-sections. It is apparent from preface of the text that the present text is mainly based on the *Prakāśikā* of Nīlakaṇṭha, *Vivṛti* of Vāmācaraṇa Bhaṭṭacārya, English commentary by Gopīnātha Bhaṭṭācārya, and *Bālapriyā* comm. by Rāmānujācārya. The editors of the book claim that the edition of Vasudev Yashwant, Athalye Mahaḍeva Bodas, have been the base for the original text.

The book under review has provided a valuable material for Hindi readers, especially for students and teachers. They have tried to present an authentic and accurate Hindi translation along with Hindi explanatory material. The Hindi translation is very lucid and useful as the

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translators of the text have tried to clarify even those portions of the text which has been left untouched by others. However, the originality of the text is maintained. The rendering is almost in Sanskrit style, as several Sanskrit terms have been reproduced in original. In entirety, the work is praiseworthy and commendable.

The *Sandarbhagranthasūcī* (Bibliography, pp.271-272) and *Anukramaṇikā* (Index, pp.273-284) given in the last portion enhance the value of the book.

The Publisher/author deserve our hearty congratulations for producing such type of valuable work.

Oriental Institute, Vadodara — Ramanath Pandey

***DARŚAN, Seeing The Divine Image in India* by Diana L. Eck; Motilal Banarsidass Publishers Private Limited, Delhi : First Indian Edition - 2007; pp.1-115; Rs.195/- (Paperback).**

The book '*Darśan, Seeing the Divine Image in India*' (clarification for dropping of syllable 'a' as final syllable in many Hindi words like Darśan, Banāras, sant, Gaṅgādvār, Prayāg, Sāgar etc. is given in Appendix II, p.102) by Diana L. Eck, was first published in 1981, by Columbia University Press, followed by two more editons (third edition in 1998). Present book is the first Indian Edition of the same. The author's perspective of writing the book, also kept on changing with each coming edition (Intro. of third edition). So this edition includes "Afterwards: Seeing the Divine Image in America" (pp.77-92) as concluding chapter/part.

The book is divided into 3 chapters, namely - 'Seeing the sacred' (pp.3-31), 'The nature of Hindu Images' (pp.32-58), 'Image, Temple and Pilgrimage' (pp.59-75) and then a fourth one mentioned above. Following them are Notes (references) - pp.93-98, three Appendices - 1. Bibliography-pp. 99-101, 2. Notes on Pronunciation - pp.102, 3. Glossary-pp.103-109 and at the end -the Index-pp.111-115.

The book gives us an insight to understand the culture of Image- worshipping in Hindu religion. The first chapter of the book is very important and interesting as the author has as if held the correct nerve of Indian religious masses who throng the famous pilgrim-places, temples in India (sometimes in other countries also) all round the year. Polytheistic Imagination of Hinduism is totally opposite of the myth of monotheism or monism of westerners. Though India also has affirmed oneness, but Indian monotheism is different from western monism. "Its cultural genius is for embracing diversity so that the diversity

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unites, rather than divides." (p.24). The complex nature of social and religious unity of India is not in 'oneness' but in interrelatedness and diversity. She relates *Darśan* with its Philosophical meaning- "Seeing of Truth".

The second chapter very impressively discusses 'The Nature of Hindu Images', classifying 'Iconic and Aniconic images of Hindu beliefs' (Iconic image is likeness to its mythic subject like, the idols of Gods/Goddesses in a temple; Aniconic image is a symbolic form like *Śivaliṅga, Sālagrāma* or Cross). Ancient Aniconic image is 'Agni' and most ancient non-Vedic Indian Aniconic images are *Grāma-devatā/devīs* (vermilion smeared stones), rivers Gaṅgā and Yamunā. Tulasī-plant, Aśvattha-tree (symbol of divine aspect of nature), the Sun. She says- 'Images are visual scriptures (p.41)'. Thus 'God has become accessible not only in incarnations, but, also in Images' (p.46).

The third chapter "Image, Temple and Pilgrimage", reflects on the relation of Image with Temple and pilgrimage-spot. The pilgrimage-spots have 'symbolic importance'. Nearly all the famous '*tīrthas*' of India-Kāśī, Badrīnātha, Kedāranātha, Madurāi, Śrī Śaila etc. are described in this chapter. Main emphasis is given on Kāśī as, 'As a microcosm, Kāśī is said to have contained all the *tīrthas* of India's sacred geography within her borders' (p.74).

The concluding chapter- "Afterword: Seeing the Divine Image in America", the author informs the readers about the spectacular Hindu Temples, situated in America. The migration of Hindus to the different parts of the Globe, has made them carry their Gods and Goddesses to those places, so that they can often have *Darśan* of their deities, along with other people. "There is a Kāśī-viśvanātha temple in Flint, Michigan,.....Minākṣī in Huston, Texas, re-creation of Krisna's land of Vraja in Schuylkill Haven, Pennsylvania. In hundreds of new Hindu temples- from Columbia, South Carolina to Stockton, California....." (P.77). While installing the images inside the temple, all the necessary rituals are followed there as they are followed in India. Thus the Indians living abroad do not feel like missing the famous Images of Gods and Goddesses, *tīrthas* and festivals of India.

This book is considered as a part of the trilogy- *Hearing the divine in India and America* by Harold G. Coward and David J. Goa; *Rāsa-Performing the divine in India* by Susan L. Schwartz (information at the back page of the book).

One correction is needed on p.57, where the statement is made- "Bengal is famous for the images of the Devī which are made for the fall-festival of *Navarātri,* "the nine nights" during which the Goddess is worshipped in her many forms." Now, Bengal celebrates "*Durgāpūjā*" for five days where the image of *Mahiṣāsuramardinī* is worshipped and Gujarat celebrates *Navarātri* - nine nights of dancing and worship 'Ambāmā'.

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Looking at the black and white photographs printed in the book, one wishes that they should have been in colour to catch the colourful essence of Indian masses. All the religious/non-religious Hindus of India should thank Diana L. Eck for so candidly and authentically writing about Image-worshiping culture of India. The book will be an addition to the richness of the collection of all the book-lovers.

Sharmila Bagchi

Oriental Institute,
The M.S. University of Baroda
Vadodara

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૩૬૪	**મહારાજા સયાજીરાવ ત્રીજા** - (સ્વ.) પ્રો. હસિત હ. બૂચ (૧૯૮૮)	૪૯.૦૦
૩૬૫	**નાભાજીકૃત ભક્તમાલના ઐતિહાસિક ભક્તો - એક અધ્યયન** - શ્રી મૂલશંકર હી. કેવલિયા (૧૯૮૮)	૪૪.૦૦
૩૬૬	**લેસર (પરમતેજ)** - શ્રી પદ્મકાન્ત ર. શાહ (૧૯૯૦)	૪૮.૦૦
૩૬૮	**અર્વાચીન સંસ્કૃત સાહિત્યનો ઈતિહાસ** - (અનુ.) એ. જે. રાવલ અને વી. એસ. લેલે	૧૮૮.૦૦
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SANSKRIT ASTRONOMICAL INSTRUMENTS IN THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA*

As in many other intellectual areas, India made great advances in sciences and technology as well: the discovery of zero and the decimal place value system, highly sophisticated astronomical computations, an advanced state of metallurgy as evidenced in the massive and rust-less iron pillar at Delhi, the technique of the wootz steel, the holistic system of Āyurveda and so on. Though these and other achievements are broadly known, there are still large gaps in our knowledge of the scientific achievements of India.

The source materials for the study of history of science are manuscripts and, to a certain extent, the artifacts. David Pingree's monumental catalogue lists thousands of manuscripts dealing with Jyotiḥśāstra, i.e. astronomy, astrology and mathematics.[1] The extant literature on Āyurveda is equally stupendous.[2] Other scientific areas also possess vast literature. Yet only a minute fraction of this literature has been published. For a correct appraisal of the scientific achievements of pre-modern India, a large number of significant texts have yet to be published in critical editions, translated into English, and interpreted in modern scientific terms.

For reconstructing the history of astronomy, besides the literary texts, the instruments used for astronomical observation also play an important role. Indian astronomers tried always to achieve *dṛksāmya*, i.e. congruence between computed and observed planetary positions. In order to achieve this congruence, they used various kinds of astronomical and time-measuring instruments, which are described in Sanskrit astronomical texts. In the seventh century, Brahmagupta gave the first systematic

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* The text of the Lecture delivered as part of "The Late Dr. U.P. Shah Memorial Lecture Series" No.10 on the 16th & 17th October, 2008.

The following abbreviations are used in the footnotes :

BORI = Bhandarkar Oriental Research Institute, Pune.

CESS = David Pingree, *Census of the Exact Sciences in Sanskrit.*

IJHS = *Indian Journal of History of Science.*

RORI = Rajasthan Oriental Research Institute.

SHMS = *Studies in the History of Medicine and Science.*

1 David Pingree, *Census of the Exact Sciences in Sanskrit,* Series A, vols. 1-5, Philadelphia 1970-1994. Unfortunately the *Census* stopped with the letter "va".

2 See Gerrit Jan Meulenbeld, *A History of Indian Medical Literature,* 5 vols., Groningen 1999; see also his online Annotated Bibliography of Indian Medicine at http://indianmedicine.eldoc.ub.rug.nl/.

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account of a large variety of instruments in an exclusive chapter called *Yantrādhyāya* of his *Brāhmasphuṭa-siddhānta*.[3] His example was followed by Lalla in his *Śiṣyadhīvṛddhidatantra* (8th or 9th century),[4] Śrīpati in his *Siddhāntaśekhara* (1039),[5] Bhāskarācārya in his *Siddhāntaśiromaṇi* (1150)[6] and others who introduced separate chapters on observational instruments in their respective *siddhāntas*. In the medieval period works devoted solely to instruments began to appear. While texts like Mahendra Sūri's *Yantrarāja* (1370)[7] were devoted to the construction and use of certain individual instruments, Rāmacandra Vājapeyin's *Yantraprakāśa* (1428)[8] and similar texts dealt with a range of astronomical and time-measuring instruments.

Thus there is an extensive literature in Sanskrit on astronomical instruments which remains almost untapped.[9] But in order to study these texts properly, one should compare the textual prescriptions with actual instruments wherever these are

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3 Brahmagupta, *Brāhmasphuṭasiddhānta*, edited with his own commentary by Sudhakara Dvivedi, Benares 1902, ch. 22: *Yantrādhyāya*, pp. 381-401. See also Sreeramula Rajeswara Sarma, "Astronomical Instruments in Brahmagupta's Brāhmasphuṭa-siddhānta," *Indian Historical Review*, 13 (1986-87) pp. 63-74.

4 Lalla, *Śiṣyadhīvṛddhidatantra*, with the commentary of Mallikārjuna Sūri, edited and translated by Bina Chatterji, New Delhi 1981, ch. 21: *Yantrādhyāya*, part 1, pp. 241-248 (text), part 2, pp. 279-291 (translation).

5 Śrīpati, *Siddhāntaśekhara*, with the commentary of Makkibhaṭṭa (chs. 1-4) and editor's own commentary (chs. 4-20), edited by Babuājī Miśra, 2 parts, Calcutta 1932, ch. 19: *Yantrādhyāya*, part 2, pp. 277-301.

6 Bhāskarācārya, *Siddhāntaśiromaṇi*, with his own *Vāsanā* and the *Vārttika* by Nṛsiṃha Daivajña, edited by Muralīdhara Caturveda, Sampurnanand Sanskrit University, Varanasi 1981, *Golādhyāya*, *Yantrādhyāya*, pp. 437-478.

7 Mahendra Sūri, *Yantrarāja of Mahendra Sūri, together with the Commentary of Malayendu Sūri* and *Yantraśiromaṇi of Viśrāma*, ed. Kṛṣṇaśaṃkara Keśavarāma Raikva, Bombay 1936. On Mahendra Sūri and his work, see David Pingree, "History of Mathematical Astronomy of India," *Dictionary of Scientific Biography*, New York 1978, vol. 15, pp. 533-633, esp. 625-629; Yukio Ohashi, "Early History of the Astrolabe in India," IJHS, 32 (1997) 199-295, esp. 211-216; Sreeramula Rajeswara Sarma, "Sultān, Sūri and the Astrolabe," IJHS, 35.2 (2000) 129-147; Kim Plofker, "The Astrolabe and Spherical Trigonometry in Medieval India," *Journal for the History of Astronomy*, 21 (2000) 37-54.

8 CESS 5.467-479; Sreeramula Rajeswara Sarma, "On the Life and Works of Rāmacandra Vājapeyin" in: Radhavallabh Tripathi (ed), *Śrutimahatī: Glory of Sanskrit Tradition: Professor Ram Karan Sharma Felicitation Volume*, New Delhi 2008, vol. 2, pp. 645-661.

9 Sanskrit literature on astronomical instruments is ably surveyed and some texts published with annotated translations by Yukio Ohashi in the following publications: "A Note on Some Manuscripts on Astronomical Instruments" in: G. Swarup et al (ed), *History of*

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extant. As there is no record of the extant instruments,[10] I decided to explore museums in India and outside and to survey the extant astronomical instruments.[11]

During the past two decades, I visited about a hundred museums and private collections in India, Europe and the US, and studied nearly 450 pre-modern Indian astronomical and time-measuring instruments preserved there. I also studied, wherever possible, instruments from other culture areas in order to see the parallel developments and mutual influences, for the history of astronomical instruments in India, like any other aspect of scientific activity, cannot be studied in isolation. I am currently preparing a descriptive catalogue of these instruments.[12] The catalogue will contain the history of each instrument type, its use and geographical spread, and a full technical description of every one of the 450 specimens.

In connection with this catalogue I visited the Maharaja Sayajirao University of Baroda in October 2008 and studied the astronomical instruments preserved in the Sanskrit Mahavidyalaya and in the Oriental Institute. These instruments will be described in the following pages. First I shall give a short description of each instrument type and its history in India. Then I shall mention the Sanskrit texts where the instrument in question is described. This will be followed by a brief survey of extant specimens. Against this background, I shall give a full technical description of each instrument at Vadodara and its historical importance.

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Oriental Astronomy, Cambridge 1987, pp. 191-195; "Astronomical Instruments of Bhāskara II and After" in: B. V. Subbarayappa and S. R. N. Murthy (ed), *Scientific Heritage of India*, Bangalore 1988, pp. 19-23; "History of Astronomical Instruments of Delhi Sultanate and Mughal India," SHMS, 10-11 (1986-87) 165-182; "Development of Astronomical Observation in Vedic and Post-Vedic India," IJHS, 28.3 (1993) 185-251; "Astronomical Instruments in Classical Siddhāntas," IJHS, 29.2 (1994) 155-314; "Early History of the Astrolabe in India," IJHS, 32 (1997) 199-295; "The Cylindrical Sundial in India," IJHS 33 (1998), S-147-205.

10 In fact, R. N. Rai, "Astronomical Instruments," IJHS, 20 (1985) 308-336, esp, p. 336, observes that "None of the instruments described by Indian astronomers before the time of Maharaja Jai Singh survive today."

11 On this project, see Sreeramula Rajeswara Sarma, "Indian Astronomical and Time-measuring Instruments: A Catalogue in Preparation," IJHS 29.4 (1994) 507-528.

12 Two catalogues of individual collections have already appeared. Sreeramula Rajeswara Sarma, *Astronomical Instruments in the Salar Jung Museum*, Salar Jung Museum, Hyderabad 1996; idem, *Astronomical Instruments in the Rampur Raza Library*, Rampur Raza Library, Rampur 2003. See also idem, "A Brief Introduction to the Astronomical Instruments preserved in Khuda Bakhsh Library, Patna," *Khuda Bakhsh Library Journal*, No. 118 (December 1999) 1-10.

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1. SANSKRIT MAHAVIDYALAYA

Soon after the foundation of the Sanskrit Mahavidyalaya in 1915, some basic astronomical instruments as described in Sanskrit astronomical treatises were caused to be made for demonstration purposes. These are too small to be used for any serious astronomical observation. They were to serve primarily as teaching tools in the classes of Jyotiḥśāstra. It is not known how many instruments were originally produced. Today there survive six complete instruments and three fragments of other unidentifiable instruments. All the instruments, barring one, appear to have been manufactured by the same artisan, who appears to have been talented and imaginative. He faithfully followed the traditional descriptions of the instruments provided to him by the teachers of Jyotiḥśāstra. He also introduced some innovations as will be shown below.[13] On each instrument he engraved the scales carefully and accurately and labelled them neatly with elegant numerals. Though produced in the early twentieth century, these deserve attention as they were fabricated according to the prescriptions of Sanskrit astronomical texts. Moreover, no Jyotiṣa department, as far as I know, owns such teaching tools. The instruments that survive today are the following: 1 *Palabhā-yantra*, 2 sine quadrants, 1 *Gola-yantra*, 1 *Dhruvabhrama-yantra*, 1 *Nalikā-yantra*.

1.1 *Palabhā-yantra*

The *Palabhā-yantra*[14] is a horizontal sundial on which a triangular gnomon is set up in a plane perpendicular to that of the dial. The gnomon has the form of a right-angled triangle, where the angle between the base and the hypotenuse is equal to the terrestrial latitude of the locality. For measuring time, the instrument is so set up that the gnomon rests on the north-south line. Then the hypotenuse will point to the celestial North Pole and its surface will become parallel to the earth's axis. The shadow of the gnomon will follow the sun's passage across the sky and show the time on the horizontal dial. For this purpose the dial is divided into time units, either in the traditional units of *ghaṭīs* (= 24 minutes) and *palas* (= 24 seconds), or in modern units of hours and minutes. These units will be unequal when projected on a horizontal dial. Since the gnomon is fashioned according to the terrestrial latitude of a specific locality, it can be used only on that latitude, and not elsewhere.

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13 See sections 1.2 and 1.3 below.

14 *Palabhā* (or *akṣabhā*), the noon equinoctial shadow, is the shadow thrown at noon by a gnomon of 12 units (*aṅgulas*) on the days of the equinox. The length of the shadow is dependent on the latitude of the place. See the section 2.2 below.

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The *Palabhā-yantra* is described probably for the first time in the *Yantraprakāra* which was compiled between 1716 and 1724 at the court of Sawai Jai Singh of Jaipur.[15] This text teaches how to calculate the angles between the hour-lines on a horizontal dial for the latitude of Delhi at 28;39°. In 1771 Nandarāma Miśra of Kāmyavana in the Vraja region (near modern Mathura in UP) described the instrument in 12 verses at the beginning of his *Yantrasāra*.[16] Around 1799/1800 Viśveśvara Mahāśabda Puṇḍarīkayājin composed a *Palabhāyantra*.[17] There exist also some anonymous works on this instrument.[18] Basically all these texts contain the same general procedure, but without the example of a specific latitude as in the *Yantraprakāra*.

The instrument appears to have been popular around the beginning of the eighteenth century in Rajasthan and may have inspired Sawai Jai Singh in designing the basic form of the *Samrāṭ-yantra* which was erected in all his observatories. There must be several specimens of the *Palabhā-yantra* extant in western India, in particular Rajasthan. Since my survey is limited to museum specimens, I did not explore all the *Palabhā-yantras* set up in public places. In Sawai Jai Singh's Observatory at Jaipur, a *Palabhā-yantra* is incorporated at the top of the *Nāḍīvalaya-yantra*. The Observatory also owns a signed and dated *Palabhā-yantra*. Its circular dial with a diameter of 238 mm is made of pink sandstone on which a brass triangular gnomon is affixed. On the dial are marked the *ghaṭī* lines 17, 16, 15, ...1, ...15, 16, 17. There is an inscription in 4 lines: *idaṃ palabhāyaṃtram / gokulanāthaśarmmaṇā / racitam saṃvat 1939 / atra nataghaṭikā jñeyāḥ*, "This *Palabhā-yantra* was designed by Gokulanātha Śarmā in Saṃvat 1939 (= AD 1882). [The time units shown here] should be known as *nata-ghaṭikās*," i.e. *ghaṭikās* to pass until the noon or the *ghaṭikās* that have elapsed since the noon. Elsewhere in Jaipur there are other specimens in the

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15 Sreeramula Rajeswara Sarma (ed & tr), *Yantraprakāra of Sawai Jai Singh*, op. cit., pp. 26 (text), 76-77 (translation and commentary).

16 I use MS Nos. 851/1884-87 (copied in 1802) and 504/1892-95 (copied in 1830) of the BORI. Independent manuscripts containing just the *Palabhā-yantra* from Nandarāma Miśra's *Yantrasāra* are also in circulation. Thus 9223 of the Oriental Institute, Vadodara, and 2672 of the RORI, Udaipur, contain the extract on the *Palabhā-yantra* from the *Yantrasāra* without identifying it as such. The latter manuscript contains several other texts on instruments.

17 Cf. David Pingree et al, *A Descriptive Catalogue of the Sanskrit Astronomical Manuscripts Preserved at the Maharaja Man Singh II Museum in Jaipur, India*, Philadelphia, Penn., 2003, p. 126, No. 243.

18 See, for example, MS No. 3184 and 3185 on the *Palabhā-yantra* at the Oriental Institute, Vadodara.

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Maharaja Man Singh II Museum, in the Sanjay Sharma Memorial Museum and in the Museum of Indology. In Amber Fort near Jaipur, there is said to be one *Palabhā-yantra*.[19] The Bharat Kala Bhavan of Banaras Hindu University, Varanasi, owns a stone specimen made for the latitude of 26° which is roughly the latitude of Varanasi. The Rao Madho Singh Museum of Kota has two *Palabhā-yantras* in stone, presumably designed for the latitude of Kota.[20]

The specimen at the Sanskrit Mahāvidyālaya (see Fig. 1) is rather small, but is neatly crafted. It consists of a smooth rectangular plate (112 x 170 x 3 mm) of reddish brass, supported by four round cylindrical legs of 10 mm height. At the middle of the plate is affixed a triangular gnomon with a base (*bhuja*) of 98 mm, hypotenuse (*karṇa*) of 106 mm, and thickness 3 mm. The third side which is to be the perpendicular (*koṭi*) to the base is not straight, but is artistically curved inside. The hypotenuse subtends an angle of 22° at the base, which is exactly the latitude of Vadodara (22;00° N, 73;16° E).

On the base plate is engraved a rectangular scale in four columns. The outermost column is graduated to measure *ghaṭīs*, and is labelled from 15 to 1 and then from 1 to 15. The next column is divided to show half *ghaṭīs* (12 minutes). The following column is graduated to measure the hours and is labelled from 6 to 1 and then from 1 to 6. In the innermost column each hour is further subdivided into 5 units of 12 minutes each. Thus this *Palabhā-yantra* is sensitive up to 12 minutes and can measure time from 6 hrs (or 15 *ghaṭīs*) in the morning to 6 hr (or 15 *ghaṭīs*) in the evening.

1.2 Sine Quadrant 1 (in the Shape of a Quarter Circle)

The quadrant (*turīya-yantra, turya-yantra, turya-gola*) is known since the time of Ptolemy in the second century AD.[21] It is made in the form of a quarter circle. The

19 Cf. Prahlad Singh, *Stone Observatories: Jantar-Mantars of India*, Jaipur 1986, pp. 40-43, illustration on p. 40.

20 Cf. Virendra Nath Sharma, "Astronomical Instruments at Kota," IJHS, 35 (2000) 233-244, esp. 243-244, figs.6-7.

21 *Ptolemy's Almagest*, translated and annotated by G. J. Toomer, New York 1984, Book I, ch. 12, p. 61, Fig. D. The *Almagest* was translated into Sanskrit by Samrāṭ Jagannātha at the court of Sawai Jai Singh. For the description of the quadrant there, cf. Ram Swarup Sharma (ed), *Samrāḍ Jagannātha-viracita Samrāṭ Siddhānta* (*Siddhānta-sāra Kaustubha*), 3 vols., New Delhi 1967-69, vol. 1, pp. 62-63. Ptolemy's quadrant was

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arc of the quadrant is graduated in degrees and marked from 1 to 90. One of the radial edges is equipped with two sights. An index or plumb line is suspended from the apex of the right angle and functions as the vertical reference for the measurements. When the sun or a star is viewed through the sights, the index shows on the arc the angle of elevation or the altitude of the heavenly body.[22] A variant called the sine quadrant (Arabic *rub*^{c} *al-mujayyab*) was developed at Baghdad in the ninth century.[23] Here the radial sides are divided sexagesimally, and from the points of these divisions, parallels are drawn to produce a grid or graph of sines and cosines of the angles marked on the arc. With such a grid, the angles measured on the arc can be directly converted into the corresponding sines and cosines. Aside from measuring the altitude of heavenly bodies, many trigonometric problems can be graphically solved with this sine quadrant. A sine quadrant is generally incorporated at the back of astrolabes. Along with the astrolabe, the sine quadrant was also transmitted to India from the Middle East some time in the early medieval period.

In India the sine quadrant is described for the first time in Sanskrit around 1423 in the *Dhruvabhraṇādhikāra*[24] by Padmanābha, who also wrote a work on a special kind of astrolabe.[25] In the subsequent centuries the instrument was described in several texts. Jñānarāja's *Sundarasiddhānta* (1503) devotes 19 verses to the

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drawn on a wall erected in the north-south direction and could be used to observe the heavenly bodies only when there are transiting the meridian. From this mural quadrant developed the portable quadrants engraved on wood or metal. Jai Singh erected mural quadrants in his observatories.

22 Cf. S. R. Sarma, "The Quadrant" in: Lotika Varadarajan (ed), *The Rahmani of M. P. Kunhikunhi Malmi of Karavatti: A Sailing Manual of Lakshadweep*, New Delhi 2004, Appendix IV, pp. 265-266.

23 Cf. Peter Schmalzl, *Zur Geschichte des Quadranten bei den Arabern*, München 1929, pp. 83-99: Der Sinusquadrant (reprinted in: *Islamic Mathematics and Astronomy*, vol. 90, Frankfurt 1998, pp. 189-331, esp. 271-287); Francois Charette, *Mathematical Instrumentation in the fourteenth-century Egypt and Syria: The Illustrated Treatise of Najm al-Dīn al Miṣrī*, Leiden 2003, pp. 209-211: sine quadrant.

24 This text describes an instrument called *Dhruvabhrama-yantra* which will be described below at 1.4. Padmanābha wrote also a commentary on this text, the manuscripts of which are listed in CESS 4.170, 5.205.

25 His *Yantrarājādhikāra* on the southern astrolabe, which was composed in 1423, is edited, translated and annotated in an exemplary fashion by Yukio Ohashi, "Early History of the Astrolabe in India," IJHS, 32 (1997) 199-295.

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construction and use of the sine quadrant at the beginning of the chapter on instruments (*Yantrādhikāra*).[26] In 1572 Bhūdhara, whose father Devadatta was honoured by Akbar, composed at Kāmpilya (modern Kampil, UP, 27;37° N, 79;17° E) an exclusive work *Turya-yantra-prakāśa* in 265 verses divided into 21 chapters.[27] Probably in the same century Cakradhara, son of Vāmana, composed another exclusive work on the sine quadrant entitled *Yantracintāmaṇi* in 26 verses together with a commentary called *vivaraṇa*.[28] Cakradhara does not mention the date of his composition, but the work is referred to by name and cited by Nṛsiṃha Daivajña of Kāśī in 1621 in his commentary on Bhāskarācārya's *Siddhāntaśiromaṇi*.[29] The *Yantracintāmaṇi* enjoyed great popularity. Besides the author's own *vivaraṇa*, two other commentaries are extant: *Yantradīpikā* by Rāma Daivajña (ca. 1625)[30] and *Turyayantropapatti* or *Yantracintāmaṇi-sūtrāṇām upapatti* by Dādābhāī (ca. 1719).[31] Moreover, some 90 manuscript copies of this work are known to exist.[32] Cakradhara coined a special name for the sine quadrant by calling it *Yantracintāmaṇi* (lit. "wishing gem of an instrument"), but this name did not catch on as Mahendra Sūri's name *Yantrarāja* for the astrolabe did. Like the ordinary quadrant, the sine quadrant also continued to be referred to as *Turīya* or *Turya-yantra*.

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26 On Jñānarāja and his *Siddhāntasundara*, cf. CESS, 3.75-76; 4.100; 5.122-123; Toke Lindegaard Knudsen, "The *Siddhāntasundara* of Jñānarāja: A Critical Edition of Select Chapters with English Translation and Commentary," PhD Thesis, Brown University, Providence 2008, pp. 2-7; I use India Office Library MS 2002. Dr Yukio Ohashi has kindly sent me a photocopy of the transcript of the *Yantrādhikāra* made by the late Prof. K. S. Shukla. The original transcript is with the Department of Mathematics, Lucknow University.

27 CESS 4.331-2. I use MS No. 35097 of the Sampurnanand Sanskrit University, Varanasi, and MS No. 12828 of the Oriental Institute, Vadodara (wrongly attributed to Bhāskara Daivajña, son of Devadatta Daivajña); it is incomplete; breaks off at ch. 13, verse 13.

28 I use Jyotiṣa MSS 10 with Cakradhara's *Vivaraṇa* (copied 1769-70) and 12 with Rāma Daivajña's *Yantradīpikā* (copied on Tuesday 3 Nov 1795 by Raghunātha) of the Department of Sanskrit, Aligarh Muslim University.

29 Cf. Bhāskarācārya, *Siddhāntaśiromaṇi*, with his own *Vāsanā* and the *Vārttika* by Nṛsiṃha Daivajña, op. cit., p. 456.

30 CESS 5. 448-449.

31 CESS 3.97, 5.135; in both places the title of the commentary is wrongly given as *Turīyayantrotpatti* instead of *Turīyayantropapatti*. I use MS 821/1884-87 of the BORI.

32 CESS 3.36-37; 4.88; 5.103-104.

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In 1658 Kamalākara, son of the above-mentioned Nṛsiṃha Daivajña, devotes 76 verses to the construction and use of the sine quadrant at the end of the *Tripraśnādhikāra* of his *Siddhāntatattvaviveka*.[33] Finally Nandarāma Miśra's *Yantrasāra* (1771)[34] deals with the sine quadrant along with other instruments. He discusses the sine quadrant rather comprehensively in 87 verses.

Since the sine quadrant is usually incorporated in other instruments like the astrolabe[35] and *Dhruvabhrama-yantra*, it is rare to meet with independent specimens of this instrument. Therefore the two well-crafted specimens at the Sanskrit Mahavidyalya are unique.

The first quadrant at the Sanskrit Mahavidyalaya (Fig. 2) is engraved on a 2 mm thick brass plate cut in the shape of quarter circle with a radius of 115 mm. On one of the radial sides of the quadrant is attached a sighting tube between two square supports. The tube is almost flush with the side of the quadrant. Along the arc of the quadrant, a circular scale in two columns is engraved. The outer column is divided into 90 degrees, while on the inner column groups of 6° are labelled in modern Devanāgarī numerals as 6, 12, 18 .....78, 84, 90, starting from the corner close to the sighting tube and reaching up to the opposite corner.

The surface of the quadrant is filled with 30 horizontal parallels and 30 vertical parallels, but these are not numbered. A quarter circle is drawn tangent to the 12th line on the horizontal and vertical sides. The lines are filled with a white substance so that they can be seen clearly.

A relatively long index of 175 mm is pivoted to a copper nail at the apex of the quadrant. The index has a triangular cross section and terminates in a violin-shaped weight. On the index there are marked 30 divisions to match the 30 divisions on the sides of the quadrant. These divisions are engraved on the two upper sides of the triangular index so that the divisions can be read more conveniently. I have not seen such an index elsewhere and this must be an innovation by the instrument maker of the Mahavidyalaya.

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33 Kamalākara, *Siddhāntatattvaviveka*, edited by Sudhakara Dvivedi, second edition revised by Muralidhara Jha, Benares 1924-1935, *Tripraśnādhikāra* 391-466, pp. 304-314. Here he refers to the sine quadrant by a strange name *aṅghri-yantra*. Of course, *aṅghri*, lit. "foot", can also denote the foot of a verse and thus "one-quarter [of a circle]."

34 CESS, 3.128-130; 5.156-158. I use MSS 851/1884-87 (copied in 1802) and 504/1892-95 (copied in 1830) of the BORI.

35 As, for example, in a Sanskrit astrolabe at the Oriental Institute on which, see section 2.1 and Fig. 10 below.

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The back of the quadrant is blank. There is a projecting bit added at right angles to the surface of the plate. This appears to be a kind of handle to hold the quadrant while making observations.

1.3 Sine Quadrant 2 (engraved on an Oblong Plate)

The second sine quadrant at the Sanskrit Mahavidyalaya (Fig. 3) is engraved on a 3 mm thick rectangular brass plate. The plate is almost square, one side measuring 154 mm and the other 151 mm. On one of the longer sides, two supports of 8 mm height are attached at both ends for holding a sighting tube, but the tube is now missing. At the left-hand side corner of the same side is pivoted a longish index of 245 mm. This index also has a triangular cross section and terminates at a violin-shaped weight, as in the previous quadrant. At the back of this weight, there is a clip-like mechanism which was originally meant to fix the index at any desired position so that the reading can be recorded at leisure. But now the clip is broken and the index can no more be fixed at any position. Such mechanism is not seen in any other quadrant and appears to be an innovation introduced by the artisan.

On the surface of the quadrant, an arc with a radius of 154 mm is drawn from the top right hand side corner to the bottom left hand side corner. Inside the arc is a circular scale of 19 mm width. This scale is divided into 5 columns. The innermost column is divided into units of $1/2^{\circ}$ each, while the next very narrow band is divided into single degrees. In the succeeding band groups of 2° are labelled as 2, 4, 6, ... 86, 88, 90 in Devanāgarī numerals, starting at the lower left and reaching up to the upper right. These are the degrees of altitude (*unnatāṃśa*). The fourth column, which is very broad, is divided in 15 units, and labelled as 1, 2, 3 ..... 13, 14, 15, in the opposite direction, starting at the upper right and reaching up to lower left. These units represent the *nataghaṭīs,* i.e. the number of *ghaṭīs* to pass until the noon if observation is made in the forenoon or the *ghaṭīs* that have elapsed after the noon if the observation is made in the afternoon. The last or the outermost column is divided into 45 divisions and labelled 2, 4, 6, ...86, 88, 90 in the same direction as the previous scale. These are degrees of the zenith distance (*natāṃśa*).

The horizontal and vertical radii of the quadrant within the inner column are each divided into 30 units, and labelled as 1, 2, 3, ... 30, starting from the apex and reaching up to the arc. From these points, a series of 30 horizontal and 30 vertical parallels are drawn from each of the points of division. These are further

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subdivided into halves, so that there are 60 horizontal and 60 vertical parallels. The lines cover not only the surface of the quadrant, but extend to some distance beyond its outer arc. Also from each of these 30 points, quarter circles are drawn parallel to the arc of the quadrant and tangent to the 30 lines on the horizontal side and on the vertical side. Thus the surface of the quadrant is quite cluttered with 30 arcs, 60 vertical and 60 horizontal lines.

The index is graduated in the same divisions as the two radii and labelled from 1 to 40, but the divisions run beyond 40 up to the end of the index. On the adjacent surface of the triangular index, there are markings for $^1/_2$ divisions.

The back of the quadrant is blank. This is a very ambitious sine quadrant, but it is cluttered with too many lines on a small area.

1.4 *Dhruvabhrama-yantra*

The creativity of Indian astronomers can be seen at its best in the instrument called *Dhruvabhrama-yantra*, which was invented by Padmanābha and described by him around 1423 in his *Dhruvabhramaṇādhikāra.*[36] Its construction is based on the phenomenon of rotation of the stellar sphere around the poles. If the stars α and β in the constellation Ursa Minor are joined by an imaginary line, this line would rotate around the North Celestial Pole–like the hand of a clock–making a full circle in a sidereal nychthemeron (*ahorātra*).

The instrument consists of an oblong metal plate with a horizontal slit at the top. Below the slit are drawn several concentric circular scales with divisions and labels. The outermost annulus or circular scale is divided into 60 units to represent the time units of *ghaṭīs*. These *ghaṭīs* are numbered in the following manner. At the topmost point of the circle, where it touches the horizontal slit, is marked the commencement of 22nd *ghaṭī*. The innermost annulus is divided into 12 unequal

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36 On the *Dhruvabhrama-yantra*, see A. ff. Garett & Chandradhar Guleri, *The Jaipur Observatory and its Builder*, Allahabad 1902, pp. 62-63, pl. X; Yukio Ohashi, "History of Astronomical Instruments of Delhi Sultanate and Mughal India," SHMS, 10-11 (1986-87) 165-182, esp. 167-168; Sreeramula Rajeswara Sarma, "Indian Astronomical and Time-measuring Instruments: A Catalogue in Preparation," IJHS 29.4 (1994) 507-528, esp. 517-518, fig. 5; idem, "Instrumentation for Astronomy and Navigation in India at the Advent of the Portuguese" in: Lotika Varadarajan (ed), *Indo-Portuguese Encounters: Journeys in Science, Technology and Culture*, New Delhi 2006, Vol. 2, pp. 505-513, esp. 507-508, 513. On the MSS of the *Dhruvabhramaṇādhikāra*, see n. 21 above.

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units in accordance with the oblique ascensions, i.e. the times of the risings of the twelve signs of the zodiac at one's own latitude (*svodaya*). The middle scale is divided into 12 equal units to represent the right ascensions, i.e. the times of the risings of the twelve zodiac signs at the equator (*nirakṣodaya*). There are also additional scales containing the names of these two sets of the zodiac signs, their sub-divisions, and also the lunar mansions (*nakṣatras*) pertaining to these two sets of the zodiac signs. Loosely pivoted to the centre of the plate is a metal index with four indicators projecting into the four directions. A plumb is suspended from the southern-most end so that it always points downwards and thus offers a vertical reference against a scale of 360 degrees.

At night, the instrument is held in a vertical plane and so rotated that the stars α and β of Ursa Minor are visible in a straight line through the slit. Then the tip of the eastern arm of the index will indicate the part of the zodiac sign which is rising in the east at that moment. This point is the ascendant (*udaya-lagna, lagna*). The middle arm will show which sign or a part thereof is transiting or crossing the meridian. This point is called the culmination or mid-heavens (*madhya-lagna*). Finally the western arm will point to the sidereal time in *ghaṭīs* on the outermost scale. Thus with this instrument, one can read off from the dial, for any given moment at night, the corresponding time, ascendant, and culmination.

As mentioned before, at the time of observation, the eastern arm points to the ascendant and the middle arm to the culmination. These two points on the ecliptic, where it intersects the local horizon and the local meridian respectively, are important for horoscope making. In Indian horoscopy, the ecliptic is divided into 12 *bhāvas* or astrological houses. The ascendant (*udaya-lagna*) is treated as the first *bhāva* and the culmination (*madhya-lagna*) as the tenth *bhāva*. Diametrically opposite the first *bhāva* is the seventh *bhāva* (*saptama-bhāva, asta-lagna*); likewise diametrically opposite the tenth *bhāva* is the fourth *bhāva* (*caturtha bhāva, pātāla*).

Thus we can read off all the four *bhāvas* from the dial of the *Dhruvabhrama-yantra*. On the astrolabe also these four points can be directly read off from the dial. When these points are known, the astrologer can easily compute all the 12 astrological houses and prepare the horoscope.

Padmanābha prescribes that a sine quadrant is engraved on the reverse side for measurements in the daytime. As mentioned above, this is where Padmanābha describes the sine quadrant for the first time in Sanskrit.

The *Dhruvabhrama-yantra* appears to have been very popular. I have seen 18

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specimens made in diverse styles in various museums and private collections in Pune, Jaipur, New Delhi, Varanasi, Paris, Brussels, London, Oxford, and New York.

The specimen at the Sanskrit Mahavidyalaya (Fig. 4) is engraved on a rectangular brass plate of 141 x 119 x 2.5 mm. The square portion of the plate is demarcated by a line. In the middle of the remaining portion, there is a 78 mm long slit, parallel to the shorter side of the plate. The slit is of uniform width, but has ornate terminals at both ends, as in the alidades of some Mughal astrolabes. These ornate tips are characteristic for the workmanship of the instrument maker and are to be seen also in a loose fragment in this collection.[37]

Below the slit, a circle is drawn which occupies the entire square portion of the plate. Inside the circle two other concentric circles are drawn, thus producing the two annuli. The two annuli are divided into 60 divisions to represent the 60 *ghaṭīs* in a sidereal nychthemeron. In the upper half of the outermost annulus, each division is further subdivided into 6 units. Each of these units represents 10 *palas* (= 4 sidereal minutes). In the lower half the *ghaṭīs* are numbered in such a way that the division immediately below the slit represents the 22nd *ghaṭī*. This is preceded by the divisions for *ghaṭīs* 1-21 and followed by those for *ghaṭīs* 23-60.

Two diameters, drawn along the diagonals of the square part of the plate, intersect at right angles at the centre. The first diagonal passes through the starting points of *ghaṭīs* 15 and 45, the second through the starting points of *ghaṭīs* 30 and 60.

Surprisingly enough there are no other scales on the plate. Scales of right ascensions and oblique ascensions are not drawn. Therefore, with this dial only the sidereal time can be measured, but not the ascendant and culmination. In spite of this, there is a three-armed index in the middle. The arms are of equal length of 57 mm and are at right angles to each other. At the fourth point, there is a large ring to which a weight can be tied with a rope. The centre of the index is artistically fashioned with small circles.

The back is empty. Here no sine quadrant is engraved for daytime measurements, as prescribed by Padmanābha. It is a great pity that this specimen, though well crafted, does not contain all the features envisaged by Padmanābha for the *Dhruvabhrama-yantra*.

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37 See section 1.7 below.

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1.5 *Gola-yantra* (Armillary Sphere)

In Indian astronomy, the *Gola-yantra* is considered to be the best instrument for graphically demonstrating the celestial motions and orbits and also for making certain kinds of observations. It is an assemblage of several great circles with a common centre and some small circles. In Sanskrit astronomical texts, the *Gola-yantra* is given the primacy amongst all other instruments. Indeed, Lalla in his *Śiṣyadhīvṛddhidatantra*, devotes an exclusive chapter for the construction of the armillary sphere, namely *Golabandhādhikāra* (ch. 15),[38] as distinct from and prior to his *Yantrādhyāya* (ch. 21). This practice is followed by Śrīpati who too has an exclusive chapter called *Golavarṇanādhyāya* (ch. 16)[39] in addition to the *Yantrādhyāya* (ch. 19). Likewise Bhāskarācārya in his *Siddhāntaśiromaṇi, Golādhyāya*, includes a *Golābandhādhikāra*[40] aside from the *Yantrādhyāya*.

The *Gola-yantra* described in Sanskrit astronomical texts is a very elaborate affair. Lalla prescribes that it should consist of three different spheres one inside the other: *khagola* (sphere of the sky), *bhagola* (sphere of asterisms) and *grahagola* (sphere of planets). Each of these spheres is made up of diverse rings representing several great and small circles.

The armillary sphere is one of the basic tools in Greek and Islamic astronomy as well. But here the instrument consists of a single sphere made up of different rings. Ptolemy describes one such armillary sphere consisting of six rings.[41] Islamic astronomers follow Ptolemy's basic design, but with a slight change in the number of the rings.[42]

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38 Lalla, *Śiṣyadhīvṛddhidatantra*, op. cit., ch. 15: *Golabandhādhikāra*, part 1, pp. 201-205 (text), part 2, pp. 232-237 (translation).

39 Śrīpati, *Siddhāntaśekhara*, op. cit., ch. 16: *Golavarṇanādhyāya*, part 2, pp. 181- 239.

40 Bhāskarācārya, *Siddhāntaśiromaṇi*, op. cit., *Golādhyāya*, 394-405.

41 *Ptolemy's Almagest*, translated and annotated by G. J. Toomer, op. cit., Book V, ch. 1, pp. 217-219; for the Sanskrit version, cf. Ram Swarup Sharma (ed), *Samrāḍ Jagannātha-viracita Samrāṭ Siddhānta* (*Siddhānta-sāra Kaustubha*), op. cit., vol. 1, pp. 410-413.

42 For example, al-'Urḍī constructed an armillary sphere of 5 rings at the Marāgha Observatory in 1259; cf. Hugo J Seemann, *Die Instrumente der Sternwarte zu Marāgha nach den Mitteilungen von al 'Urdī*, Erlangen 1929, pp. 33-57.

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The *Yantraprakāra* attributed to Sawai Jai Singh describes, following the Islamic model, an armillary sphere with five rings and another of six rings.[43]

Though considered a very basic tool in Sanskrit astronomy, there are not many specimens extant today, probably because they were made of perishable material like bamboo. It is recorded that in the second half of the ninth century, a large *Gola-yantra* was erected at Mahodayapura[44] on the Kerala coast at the instance of King Ravivarman Kulaśekhara. The astronomer Śaṅkaranārāyaṇa, in his commentary of 869 on Bhāskara's *Laghubhāskarīya*, refers to this *Gola-yantra*.[45] But it is no more extant.

During my survey, I came across just four specimens in various museums in India and Europe: Rao Madho Singh Museum at Kota in Rajasthan,[46] Sawai Jai Singh's observatory at Jaipur,[47] Linden Museum, Stuttgart, Germany,[48] and the Royal Scottish Museum, Edinburgh, Scotland. The armillary sphere at Kota consists of three inter-nesting spheres as prescribed in the astronomical *siddhāntas*. The specimen at Stuttgart has two spheres, while those at Edinburgh and Jaipur consist of just one single sphere of rings.

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43 Sreeramula Rajeswara Sarma (ed & tr), *Yantraprakāra of Sawai Jai Singh*, op. cit., 16-18 (text); 54-58 (translation and commentary). Here the instrument is referred to by its Arabic name *Dhāt al-Ḥalaq*.

44 This ancient Mahodayapura is said to be identical with the modern locality Makotai, near Kodangallur (10;25° N; 76;15° E).

45 Cf. B. V. Subbarayappa and K. V. Sarma, *Indian Astronomy: A Source-Book (Based primarily on Sanskrit Texts)*, Bombay 1985, p. 81; K. V. Sarma, *Observational Astronomy in India*, Department of Sanskrit, University of Calicut, Calicut 1990, pp. 41-42.

46 Described by Virendra Nath Sharma, "Astronomical Instruments at Kota," IJHS, 35 (2000) 233-44, Figs. 1-3. The armillary sphere was first noticed by Lancelot Wilkinson, "On the Use of the Siddhāntas in the Work of National Education," *Journal of the Asiatic Society of Bengal*, 3 (1834) 504-519, esp. 515.

47 Virendra Nath Sharma, *Sawai Jai Singh and his Astronomy*, Delhi 1995, pp. 35-36, fig. 2-4.

48 See Sreeramula Rajeswara Sarma, "Indian Astronomical Instruments in German Collections," XXX. Deutscher Orientalistentag, Freiburg, 24.-28. September 2007. Ausgewählte Vorträge, hrsg. im Auftrag der DMG von Rainer Brunner et al. Online-Publikation, Februar 2008. http://orient.ruf.uni-freiburg.de/dotpub/sarma.pdf, pp. 7-8, fig. 1. This armillary sphere was said to be from the Scindia Palace in Gwalior.

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It is reported that there was a huge armillary sphere made of bamboo in the Baroda Sanskrit Mahavidyalaya and that it was set up at the top of the building. But it was not found there during my visit in October 2008. It is not known whether this armillary sphere consisted of a single sphere or two spheres or three spheres. What I found was a small armillary sphere made of iron and consisting of just one sphere of rings.

The extant armillary sphere (Fig. 5) consists of seven rings, each with a circumference of about 1050 mm (i.e. with a diameter ca. 334 mm). These constitute the various great circles of the armillary sphere, such as the celestial equator (*nāḍīvalaya*), the ecliptic (*krāntivṛtta*) intersecting the former at an angle of ca. 24°, a ring perpendicular to the celestial equator on which the celestial North Pole and South Pole are situated respectively at a distance of 90° north and south (equinoctial colure), a ring perpendicular to the ecliptic, the solstitial colure, and two others that cannot be clearly identified.

On each of the rings, two scales are engraved on one of the edges. The outer scale is divided into single degrees of arc and the inner scale into groups of 6°, but not labelled. The seven rings are mounted on a shaft of about 500 mm. This shaft passes through the poles on the ring which is perpendicular to the celestial equator. Therefore the shaft functions as the polar axis. In the middle of the axis, there is a globe representing the earth. At the North Pole of the earth globe, there is a small tube and a screw with which the globe is fixed tightly to the shaft.

Apparently this armillary sphere was originally mounted on a stand, but this stand is now missing. The rings are somewhat rusty.

1.6 *Nalaka-yantra* (Accession No. R.S.M.D. 100)

Traditionally *Nalaka-yantra* or *Nalikā-yantra* is not an observational instrument but a tool for verifying computed planetary positions.[49] That is why it is not discussed in the chapter on instruments (*Yantrādhyāya*) in the astronomical *siddhāntas*, but in the chapter dealing with three questions (*Tripraśna*). The *Nalaka-yantra* is a hollow tube made generally of bamboo. It is mounted on two bamboo sticks which are tied crosswise (like the letter X) and dug firmly in the earth. The tube is mounted on

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49 Cf. R. N. Rai, "Astronomical Instruments," op. cit., p. 333: "Its use is only to verify the correctness of the computations of shadow and *bhuja*. If the computation is wrong, the planet will not be seen in the direction indicated by the values of the computed *bhuja* and *koṭi*."

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these bamboo sticks in such a way that its lower end is at the observer's eye level and he can observe the planetary position through the tube directly in the sky; or the tube is mounted near a water body in such way that the planet's reflection can be seen in the water.

In the *Tripraśnādhikāra* of his *Śiṣyadhīvṛiddhidatantra,*[50] Lalla teaches the procedure of verifying the computed planetary positions by means of this *Nalaka-yantra,* and this procedure is adopted by Śrīpati in his *Siddhāntaśekhara*[51] and by Bhāskarācārya in his *Siddhāntaśiromaṇi.*[52] In the late medieval period, several small tracts were composed which deal with this *Nalaka-yantra.*[53]

The *Nalaka-yantra* at the Sanskrit Mahavidyalaya (Fig. 6) is not related to the traditional instrument of the same name. This one is an entirely modern instrument to measure the altitude (*unnatāṃśa*) and azimuth (*digaṃśa*). It works on the same principle as the modern theodolite, but is constructed differently. It was certainly not made by the same artisan who made all the other instruments, but by some one skilled in making modern scientific instruments.

This instrument contains a 398 mm long brass tube with a diameter of 20 mm which is mounted on an elaborate stand. The stand consists of a brass base (427 x 290 mm). In the base are incorporated two spirit levels, one perpendicular to the other, and a compass, for levelling and orientation purposes. From the base rise two cylindrical pillars (430 mm high). The pillars support a transverse horizontal bar on which the sighting tube is mounted. On the upper side of the tube is attached one

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50 Lalla, *Śiṣyadhīvṛddhidatantra,* op. cit., *Tripaśnādhikāra* 47-49, part 1, pp. 80-83 (text), part 2, p. 99 (translation).

51 Śrīpati, *Siddhāntaśekhara,* op. cit., *Tripraśnādhyāya* 84-86, part 1, pp. 302-304.

52 Bhāskarācārya, *Siddhāntaśiromaṇi,* op. cit., *Grahagaṇita, Tripraśnādhikāra* 105-109, pp. 224-225.

53 For example, Rāmakṛṣṇa, *Nalikābandhakramapaddhati,* MS. Khasmohor 5295, Maharaja Man Singh II Museum, Jaipur, copied by Tulārāma on Tuesday 17 September 1706, cf. David Pingree, CESS A5, 453a; David Pingree et al, *A Descriptive Catalogue of the Sanskrit Astronomical Manuscripts Preserved at the Maharaja Man Singh II Museum in Jaipur, India,* op. cit., pp. 126-127; Vāmanaprasāda, *Nalakayantrasādhana,* MS d. 705(1), Chandra Shumshere Collection, Bodleian Library, Oxford, copied on *śāke 1665 pauṣa śukla 3 gurau* = Thursday, 19 December 1743; Gopirāja, *Nalikāprabandha,* MS. 37225, Rajasthan Oriental Research Institute, Jodhpur, copied on *Saṃvat 1879/Śāka 1745, Jyeṣṭha vadi 8, candravāra* = Monday, 2 June 1823. Besides, there are several anonymous texts at the Rajasthan Oriental Research Institute, Jodhpur.

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more spirit level. Around the point where the tube is attached to the bar, a circular scale for measuring the azimuth is mounted on the bar. The sighting tube can be rotated upon this circular scale (in the horizontal plane) by means of a screw. The scale is divided into single degrees, and groups of 5° are labelled in Devanāgarī numbers, separately for each quadrant.

At the points where the transverse supporting bar touches the pillars, two circular scales are mounted on the pillars to measure the altitudes. A pin attached to the transverse bar moves on the circular scale and points to the altitude. The altitude circles are graduated in single degrees, and groups of 5° are labelled as in the azimuth scale. The transverse bar can be rotated in a vertical plane by means of a screw attached to one of the pillars. Another transverse bar joins the tops of the pillars.

The number R.S.M.D. 100 is painted on the base. There is oxidization on the base. Some of the legs supporting the base are lost and the instrument cannot stand properly. The compass and spirit levels need cleaning. The sighting tube and altitude scales also need repair. This is quite an ingenious stand and deserves to be properly repaired.

1.7 There are three loose brass pieces which appear to be parts of some instruments which cannot be identified. The first fragment is a rectangular base with two upright pillars at the ends of the longish side. Between the two pillars, a semicircular strip of metal is pivoted to a pin. The strip is graduated on one side in *ghaṭīs* and its 1/6 parts, and labelled as 15-1; 1-15. The other side is graduated for hours and its 1/15th parts, and labelled as 7-1; 1-7. There are holes at the two ends, at the points which indicate 15 on the *ghaṭī* scale and 6 on the hour scale. This is obviously some kind of equinoctial sundial, with the gnomon missing. The semi-circle functions like the two arcs on either side of the triangular gnomon of Jai Singh's *Samrāṭ-yantra*.

The second fragment is a semi-circular strip like the one above, also in size, but blank. Its tips are ornate, exactly like the slit in the *Dhruvabhrama-yantra*, which was described above in section 1.4.

The third item is a brass tube to which a thick semi-circular brass plate is attached. The ends of the tube are cut as in a screw. At the middle of the semi-circular plate is mounted a socket to receive some piece. This is a somewhat heavier piece and the workmanship is akin to that of the *Nalaka-yantra*.

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2. ORIENTAL INSTITUTE

The Oriental Institute possesses two Sanskrit astrolabes. Before the invention of the telescope, the astrolabe was the most important astronomical instrument. It was designed originally in Greece some time around the second century BC, but reached its perfection in the Middle Ages in the Islamic world, from where it was spread westwards to Europe and eastwards to India. It may have been introduced into India in the eleventh century by al-Bīrūnī who wrote extensively on this instrument. Its manufacture commenced in India in the fourteenth century under Sultān Fīrūz Shāh Tughluq of Delhi (r. 1351-1388). He is reported to have commissioned several astrolabes and also manuals on the astrolabe in Persian and Sanskrit. Of these only the Sanskrit manual on the astrolabe survives.[54] In the Mughal period were produced a large number of highly complex and ornate astrolabes with Arabic-Persian legends. About 150 of these astrolabes survive in different museums today.[55]

Jain and Hindu astronomers enthusiastically received the astrolabe. Mahendra Sūri, a Jain monk from Bhṛgupura (modern Bharuch), composed the first Sanskrit manual in 1370 at the court of Fīrūz Shāh Tughluq. He was so impressed by the versatile functions of the astrolabe that he called it *yantra-rāja*, "king of astronomical instruments". Between the fourteenth and eighteenth centuries more than a dozen manuals were composed in Sanskrit on the astrolabe, mainly in Gujarat and Rajasthan.[56] Besides the Sanskrit manuals, Sanskrit astrolabes, i.e. astrolabes with Sanskrit legends and Devanāgarī numerals, were also produced in great numbers. I have seen about a hundred Sanskrit astrolabes in museums and private collections in India, Europe and the US. Like the Sanskrit manuals, these Sanskrit astrolabes were also produced mainly in Gujarat and Rajasthan.

Generally the astrolabes contain several plates calibrated for use at different latitudes. Such astrolabes are naturally more complex and expensive to produce. In order to popularize the astrolabe, Sawai Jai Singh seems to have encouraged the production of simple Sanskrit astrolabes with a single plate to be used at a specific latitude, often the latitude of Jaipur which is roughly 27° N.

Of the two Sanskrit astrolabes at the Oriental Institute, the first one contains a

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54 Sreeramula Rajeswara Sarma, "Sultān, Sūri and the Astrolabe," IJHS, 35.2 (2000) 129-147.

55 Sreeramula Rajeswara Sarma, "The Lahore Family of Astrolabists and their Ouvrage," SHMS, 13.2 (1994) 205-224.

56 Sreeramula Rajeswara Sarma, "Yantrarāja: the Astrolabe in Sanskrit," IJHS, 34 (1999) 145-158.

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single latitude plate and appears to have been manufactured in the nineteenth century. The second astrolabe has three plates. More important, there is an inscription stating that the astrolabe was produced in 1651. Thus this astrolabe belongs to a small group of earliest extant Sanskrit astrolabes and is therefore historically very valuable.

2.1 *Yantrarāja* 1 (Sanskrit Astrolabe) with a Single Plate

Of this astrolabe only the main body and the perforated star map are extant (Fig. 7). The other components, viz. the alidade to measure the altitudes of the heavenly bodies, the pin and the wedge to hold all the components together are missing.

The main body, made of a thin sheet of copper, consists of a small ring (*kuṇḍala*[57]), a small shackle (*śṛṅkhalā*), and a high suspension bracket, all these surmounted on a large disc. The whole body including the suspension bracket has a height of 285 mm. The diameter of the circular disc is 236 mm. The triangular suspension bracket is called *kursī* (throne) in Arabic and *kirīṭa* or *siṃhāsana* (crown) in Sanskrit. Its profile is ornately shaped with symmetrical lobes and scallops on both sides. On the front surface of the crown is engraved a half lotus enclosed within a semicircle. The back of the crown also carries a half lotus (but of slightly different design) inside a semicircle.

The front side of the circular disc (Fig. 9) is calibrated to serve as the latitude plate (*akṣapatra*). On the rim of the disc (*parikhākāra-vṛtta*) are engraved two concentric circular scales. The inner scale is divided into single degrees of arc, while the outer scale is divided into groups of 6°. These units are labelled as 1, 2, 3 ..... 58, 59, 60 in Devanāgarī numerals in clockwise direction starting from the top centre. The lines of division are carelessly drawn; the divisions are not uniform; the lines should point towards the centre of the circle, but rarely do so.

The outer circumference of the disc represents the Tropic of Capricorn (*makarāhorātravṛtta*). Concentric to this, but at appropriate distances are drawn the circles of the celestial equator (*meṣāhorātravṛtra*) and of the Tropic of Cancer (*karkāhorātravṛtta*).

Superimposed on these circles is the arc of the local horizon (*kṣitija*). Parallel

57 This and the following Sanskrit terms for the different components of the astrolabe are taken from Mahendra Sūri's *Yantrarāja* and from the *Yantrarājavicāra-viṃśādhyāyī*, (a Sanskrit rendering of Naṣīr al-Dīn al-Ṭūsī's celebrated Persian work, the *Bist Bāb*); cf. Mahendra Sūri, *Yantrarāja of Mahendra Sūri*, op. cit.; *Yantrarājavicāra-viṃśādhyāyī*, ed. Vibhūtibhūṣaṇa Bhaṭṭācārya, Sampurnanand Sanskrit University, Varanasi 1979.

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to it are drawn the equal altitude lines or almucanters (*unnatāṃśa-vṛtta*) for each 3° and numbered as 1, 2, 3 .....28 on the left as well as on the right. The last two numbers, viz. 29 and 30, are not engraved owing to the lack of space. Azimuths circles (*diagaṁśa-vṛttas*) are drawn above and below the horizon for each 9°, but some are omitted at the middle. In the lower half lines of unequal hours (*viṣama-horā-vṛtta*) are drawn but not numbered. The lines on the left are very faint.

Generally on the latitude plates, the astrolabe maker mentions the latitude for which the plate is calibrated. This plate, however, carries no such inscription. But the configuration of the equal altitude lines shows that this plate and thus this astrolabe was made approximately for the latitude 30° N, possibly for use in the city of Kurukshetra (29.98° N; 76.82° E).

The back of the astrolabe (Fig. 10) is divided into four quadrants by vertical and horizontal diameters. As in the front, here also the rim is covered by two concentric circular scales, the inner scale of single degrees and the outer scale divided into groups of 6°. But only the upper half of the outer scale is labelled as 6, 12, 18 ..... 78, 84, 90, starting respectively from the east and west points and reaching to the south point at the top. This scale is meant for measuring the altitudes of heavenly bodies by means of the alidade, which is missing here.

The four quadrants at the back of the astrolabe generally contain diverse trigonometric and astrological tables. In this astrolabe, the upper left quadrant is blank. In the upper right quadrant are engraved 30 vertical and 30 horizontal lines at equal distances, forming the sine-cosine graph. With the help of this, the angles of altitude measured in degrees on the circular scale on the rim can be directly converted into the corresponding sines and cosines. Thus a sine quadrant described above is incorporated into this astrolabe.

The lower half on the back of the astrolabe contains generally shadow squares which are missing here. Instead, two more circular scales are engraved inside, concentric with the rim, showing single degrees and groups of 6°. These are drawn inaccurately and have no function.

The rete or the star-map (*bhapatra*) of this astrolabe (Fig. 8) is a perforated disc with a diameter of 207 mm. Here also the outer circumference constitutes the Tropic of Capricorn, which is shown partly. The celestial equator is shown almost completely. The ecliptic (*krāntivṛtta*), eccentric to the celestial equator, is represented fully. The circular bands representing these three circles are held together by the horizontal equatorial bar and a short segment of the vertical solstitial bar which connects the Tropic of Capricorn and the equator. The ecliptic is divided into the

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12 signs of the zodiac which are labelled as *meṣa, vṛṣa, mithu[na], karka, siṃha, kanyā, tula, vṛ[ścika], dhanta* (sic! read *Dhanuṣ*), *maka[ra], ku[mbha] and mīna*. Each sign is divided into 5 parts of 6° each; each part is further subdivided on the edge into 3 units of 2° each.

There are 5 star pointers outside the ecliptic ring, i.e. to the south of the ecliptic, and 12 inside, i.e. north of the ecliptic. The stars inscribed on these pointers are tabulated below in the order of their increasing longitude, starting from the vernal equinox and proceeding anti-clockwise.

Table 1: Stars in the Star Map of *Yantrarāja* 1

S.No.	Star Name as engraved	Correct or Full Form	North or South of the Ecliptic	Modern Identification
1	*ajānā* (sic!)	*matsyodara* ?	n	β Andromedae
2	*rohiṇī*		s	α Tauri
3	*bra. hṛ.*	*brahma-hṛdaya*	n	α Aurigae
4	*ārdrā*		s	α Orionis
5	*lu.*	*lubdhaka*	s	α Canis Maioris
6	*lu. ta.* (sic!)	*lubdhaka-bandhu*	s	α Canis Minoris
7	*mahāpuru*	*mahāpuruṣa*	s	α Hydrae
8	*pū. phā.*	*pūrvā phālguṇī*	n	δ Leonis
9	*hastā*		s	δ Corvi
10	*citrā*		s	α Virginis
11	*marīci*		n	η ? Ursae Maioris
12	*svāti*		n	α Boötis
13	*abhijit*		n	α Lyrae
14	*śrava*	*śravaṇa*	n	α Aquilae
15	*āśra* (sic!)	*aśvamukha*	n	ε Pegasi
16	*śatabhi*	*śatabhiṣaj*	n	λ Aquarii
17	*pū. bhā.*	*pūrvā bhādrapadā*	n	β Pegasi

The lines and letters are filled with some white substance for easy reading.

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2.2 *Yantrarāja* 2 (Sanskrit Astrolabe) with Multiple Plates, AD 1651

The earliest surviving Sanskrit astrolabes pertain to the seventeenth century. So far I have located eight specimens dated between 1605 and 1673. All these have multiple plates and are mainly from Gujarat.

The present astrolabe (Acc. No. 20735), produced in Gujarat in 1651, is the ninth astrolabe belonging to the seventeenth century and thus it is one of the earliest extant Sanskrit astrolabes. Fortunately all the various components of the astrolabe are intact. These consist of the heavy and circular main body with a crown-line projection at the top with a shackle and ring for suspension, rete, three latitude plates, alidade, pin and wedge (Fig. 11). A modern aluminum chain is attached to the top ring. The astrolabe is in a good state of preservation.

The main body of the astrolabe (Arabic: *umm*, Latin: *mater*, Sanskrit: *koṣthakāgāra, āgāra*) consists of a thick circular plate with an upraised rim (*pālī, parikhākāra-vṛtta*) (Fig. 12). It is surmounted by a triangular piece resembling a crown (Arabic: *kursī*, Sanskrit: *kirīṭa, siṃhāsana*). A shackle (*śṛṅkhalā*) and a ring (*kuṇḍala*) are added to the top of the crown so that the astrolabe can be suspended in a vertical plane and also swung around in a circle. The ring and the shackle are neatly crafted with a diamond-shaped cross-section (Fig. 14). This feature is to be generally found in the Indo-Persian astrolabes produced by the members of the famous Lahore family of astrolabe makers.

The crown is solid and somewhat high, rising above the circumference of the body by 33 mm. The left and right profiles of the crown are contoured with a succession of lobes. Two holes are bored near the left and right edges. These holes have no real function. Some thirteenth century Kufic astrolabes from the Middle East carried such holes as decorations, and this practice is emulated occasionally in later astrolabes. There is another hole at the very top of the crown. Into this is inserted the shackle. The meridian or the south-north line (*khamadhya-sūtra*), drawn on the body, is extended on to the crown on both the sides. Otherwise the front and the back of the crown are blank.

The main circular body, or mater, has a diameter of 135 mm. The height of the astrolabe including the crown is 168 mm and the thickness is 8 mm. The mater, the rim and the crown are cast as a single piece. The rim is 12 mm wide and carries two circular scales. The inner scale which is rather narrow is divided into single degrees of arc, while the broad outer scale is marked for units of 5° and labelled as 5, 10, 15 ..... 350, 355, 360, starting from the top centre and proceeding in a clockwise direction. The inner side of the mater is completely blank. Usually a

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geographical gazetteer is engraved here. A pin at about 113° holds the plates firmly in position, when the holes in the plates slide over the pin.

On the circular edge of the mater, there is an inscription in Devanāgarī mentioning the date of manufacture and the name of the owner for whom it was made. This inscription reads as follows (Fig. 19):

saṃvat 1708 varṣe śāke 1574 pravarttamāne caitra śudi 15 bhaume

jānī harajī suta jīvatāpano yaṃtrarāja che //

"In Saṃvat year 1708 [expired], in Śaka 1574 current, in the month of Caitra, in the bright half, on the 15th day, on Tuesday, [this] astrolabe is of Jīvatāpana, son of Jānī Harajī." According to the online Pancanga program,[58] Vikrama 1708 (Śaka 1573), both expired, *caitra śu* 15, translates to Wednesday, 5 April 1651 (Gregorian). After adjusting for the weekday, it would be Tuesday, 4 April 1651 AD.

Four circular discs are inserted in the space created inside the upraised rim in the mater. The topmost disc is perforated so that the readings on the plate below can be read through the perforations (Fig. 15). This perforated disc (Arabic: *'ankabūt,* Latin: *rete,* Sanskrit: *bhacakrapatra, bhapatra*) contains the ecliptic and the star map with pointers indicating the positions of some bright stars. Beneath this rete are to be found a series of plates (*akṣāṃśapatra, akṣapatra*) which are specific to particular terrestrial latitudes and display stereographic projections pertaining to that latitude. When the rete is correctly set and made to rotate upon the plate of a particular latitude, the astrolabe simulates the motion of the heavens above the localities situated on that latitude.

The rete (*bhapatra*) of the present astrolabe has a diameter of 109 mm. Its outer circumference constitutes the Tropic of Capricorn (*makarāhorātravṛtta*). It is represented on the rete by a circular strip which is open at the top. The celestial equator (*meṣāhorātravṛtta*) is shown partially by a small arc in the lower half. Eccentric to the celestial equator is the ecliptic (*krāntivṛtta*) which is fully represented by a broad ring. The Tropic of Capricorn, the ecliptic ring and a circular ring at the middle of the plate are held together by the horizontal equatorial bar. The short arc of the equator is held in position by struts at its two ends and in the middle, which join the arc to the ecliptic on one side and to the Tropic of Capricorn on the other side.

The ecliptic is divided into the 12 signs of the zodiac. The signs are not marked by their names but only by their serial numbers 1, 2, 3 .... 10, 11, 12. Each sign is divided into 5 divisions, the markings of division running down the sloping edge. Several flame-shaped star pointers arise from the Tropic of Capricorn, from the

58 http://www.cc.kyoto-su.ac.jp/~yanom/pancanga/index.html

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arc of the equator, from the ecliptic and from the central ring. There are 9 such star pointers outside the ecliptic (i.e. to the south of the ecliptic) and 11 inside the ecliptic (i.e. to the north of the ecliptic). On each of these pointers, the name of the star which they point to is engraved, often in an abbreviated form. There is a short knob or handle on the left of the horizontal bar, between the Tropic of Capricorn and the ecliptic. With this handle, the rete can be rotated around the centre. The marks of division on the ecliptic band as well as the star names are engraved rather crudely. The stars inscribed on these pointers are listed in Table 2 in the order of increasing longitude, starting from the vernal equinox and proceeding anti-clockwise.

Table 2: Stars in the Star Map of Astrolabe 2.2

S.No.	Star Name as engraved	Correct or Full Form	North or South of the Ecliptic	Modern Identification
1	*sa. pa.*	*samudrapakṣī*	s	ι Ceti
2	Not named	*rañjitakara* ?	n	β Cassiopieae
3	*pre.* ?	*pretaśiras*	n	β Persei
4	*bra. hṛ.* (?)	*brahmahṛdaya*	n	α Aurigae
5	*rohi.*	*rohiṇī*	s	α Tauri
6	*mi. vā.*	*mithunavāmaskandha*	s	γ Orionis
7	*mi. pā. da.*	*mithunapāda-dakṣiṇa*	s	κ Orionis
8	*mi.ha.* (?)	*mithunahasta*	s	α Orionis
9	*lubdhaka*		s	α Canis Maioris
10	*lubdhakava*	*lubdhakabandhu*	s	α Canis Minoris
11	Not named	*purvā phālguṇī*	n	δ Leonis
12	*kā-*	*kākaskandha*	s	γ Corvii
13	*citrā*		s	α Virginis
14	*svāti*		n	α Boötis
15	*mātṛ*	*viśākhā mātṛmaṇḍala*	n	α Coronae Borealis
16	illegible	*sarpadhārīśiras*	n	α Opiuchi
17	*a*	*abhijit*	n	α Lyrae
18	*śravaṇa*		n	α Aqilae
19	*ku-*	*kukkuṭapuccha*	n	α Cygni
20	*a-*	*aśvamukha*	n	ε Pegasi

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Below the perforated rete or star map are stacked three discs or plates having the same diameter of 109 mm as the rete. On each face of each plate, the stereographic projections pertaining to the latitude of a particular city are engraved. Thus these three plates contain projections for six cities located between latitudes 21° and 29°, viz. Burhanpur, Ahmedabad, Patan, Sirohi, Agra and Delhi. Depending on the city where the astronomical observations are to be made, the face of the plate containing the projections of that city is placed upwards on the top of the other two plates. Then the perforated star map is placed upon the face containing the projections of the desired city.

As mentioned above, the inner side of the mater contains a pin projecting upwards perpendicular to the surface of the mater. Each of the latitude plates has a hole at the place corresponding to the position of the pin. When the plates are placed inside the mater, the pin passes through the holes in the three plates and holds them firmly and prevents them from rotation. The perforated star map, however, does not have any hole, because it has to be rotated upon the surface of the projections of the desired city according to the passage of time.

However, the pin should have been located on the meridian or the south-north diameter. Then, when the plate is reversed, the same hole slides over the pin. But in this astrolabe the pin is placed away from the meridian on the right. When the reverse side of a plate has to be used, the hole will be on its left side and the pin will not fit into it. Therefore a second hole had to be drilled into each plate, so that the plate could be turned around whenever it is necessary.

On each face are engraved the three circles representing the Tropic of Capricorn (*makarāhorātravṛtta*), the celestial equator (*meṣāhorātravṛtta*) and the Tropic of Cancer (*karkāhorātravṛtta*) successively one inside the other. Upon these circles are drawn the stereographic projections of the local horizon (*kṣitija*) and parallel to it the equal altitude circles or almucantars (*unnatāṃśavalayas*), azimuth circles (*digaṃśa-vṛttas*) and hour lines (*horā-vṛttas*) pertaining to the terrestrial latitude for which the face is meant. On all the six places almucantars are drawn for each 6° and numbered as 6, 12, 18 ..... 78, 84, 90 both on the left as well as on the right. Azimuths are drawn only once: on the face calibrated for Burhanpur, azimuths are drawn for each 9° but not numbered. On the remaining five faces, there are no azimuths. But on all the faces, lines for unequal hours (*viṣamahora-vṛttas*) are drawn and numbered 1, 2, 3 ..... 10, 11, 12, starting from the western horizon and reaching the eastern

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horizon.[59] On the faces relating to Burhanpur and Ahmedabad, these are drawn as straight lines; on the other faces these are correctly drawn as arcs of the circle.

Generally on each face is mentioned the latitude for which this particular face is calibrated. But plates in the present astrolabe contain not only the latitude, but other values as well. The data engraved below the central hole on each face of the plates contains the following information: (i) the name of the city, (ii) the terrestrial latitude in degrees (*akṣāṃśa*), (iii) the length of the noon equinoctial shadow (*akṣabhā*)[60] in *aṅgulas*, (iv) the duration of the longest day (*parama-dina*) in *ghaṭīs* and *palas*, and also in hours and minutes. The three items, viz. the latitude, the length of the noon equinoctial shadow and the duration of the longest day, are dependent on one another; they are functions of the latitude.[61] Here the noon equinoctial shadow is designated as *bhā* (short for *akṣabhā* or *palabhā*) and the longest day is indicated as *parama-dina* or by its abbreviation *pa.di.* The latitude and the longest day in hours are indicated by a symbol that resembles the symbol for the *avagraha* in the Devanāgarī alphabet. (We shall represent it here with the italicized *S*). On Sanskrit astrolabe plates, normally only the latitude is given, sometimes also the longest day. In the earliest extant Sanskrit astrolabe which was produced in 1605 in Ahmedabad, the latitude (*akṣāḥ*), the length of the noon equinoctial shadow (*chāyā*) and the duration of the longest

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59 Unequal hours are the 12th parts of the daytime and the 12th parts of the night taken separately. Since these lengths vary according to the seasons, these are also called "seasonal hours". In Islamic astrolabes, these unequal hours are counted from the western horizon (which represents the sunset) because for Muslims the day commences at the sunset and not at the sunrise. In a Sanskrit astrolabe, it would have been more appropriate to engrave the lines which show the *ghaṭīs* counted from the sunrise.

60 See n. 14 above. David Pingree has collected several tables of localities with their respective noon equinoctial shadow lengths in "Sanskrit Geographical Tables," IJHS, 31 (1996) 173-220.

61 Cf. G. R. Kaye, *The Astronomical Observatories of Jai Singh,* Calcutta, 1918, reprint: New Delhi 1982, pp. 32: "The latitudes are given in four different ways: (*i*) in degrees, (*ii*) in length of the longest day (in ghaṭis and palas), (*iii*) in length of the equinoctial shadow or *tan* φ, (*iv*) by the hypotenuse of the equinoctial shadow or *sin* φ." The Greek letter φ (phi) is used for expressing the latitude of a place. The values for Ahmedabad given on this page of a Sanskrit astrolabe which is now with the Archaeological Museum at the Delhi Red Fort are: longest day 33;50, latitude 23, shadow 5;6, hypotenuse 13;3. For a full description of the astrolabe, see idem, *Astronomical Instruments in the Delhi Museum* (Memoirs of the Archaeological Survey of India, No. 12), Calcutta 1921, p. 12.

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day (*paramadinaṃ*) in *ghaṭīs* are mentioned.[62] But it is for the first time that the longest day is given both in *ghaṭīs* and hours. We reproduce below the inscriptions containing these values. Here we number the plates as 1, 2, and 3 and the two faces as a and b.

1a. Buhurānāpura (Fig. 16)

The inscription engraved below the central hole reads as follows:

bhā 4|38 pa. *buhurānāpure*
di. 33|14 *S 21|6*
S 12|5

This translates to "At Burhanpur, [the latitude is] 21° 6'; noon equinoctial shadow (*bhā*) 4;38 [*aṅgulas*]; longest day (*pa.di.*) 33 [*ghaṭīs*] and 14 [*palas*]; [or] 12 [hours] and 6 [minutes]."

1b. Amadāvāda (Fig. 16)

After engraving the projections on face a, the astrolabe maker reversed the plate and, by mistake, also turned the plate upside down by 180° and engraved the almucantars and hour lines. Later, realizing the mistake, he once again turned the plate by 180° and engraved once again almucantars and hour lines, and then engraved the numbers and the inscription. Technically then this plate can be used in both directions. Therefore, two holes had to be bored in the upper and lower halves to fit into the pin. The inscription below the central hole reads thus:

bhā 5|6 parama *amadāvāda*[63]
dina 33|36 *S horā (?)*
S 13|4 *S 23|1*

"Ahmedabad, [latitude] 23°1', noon equinoctial shadow (*bhā*) 5;6 [*aṅgulas*], longest day (*parama-dina*) 33 [*ghaṭīs*] and 36 [*palas*]; [or in] hours (*horā*) 13 [hours] and 4 [minutes]."

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62 See A. J. Turner, *Astrolabes, Astrolabe-related Instruments*, The Time Museum, Catalogue of Collection, vol. I, part 1, Rockford 1985, No. 15, pp. 120-123.

63 It is customary in this context to mention the name of the city in the locative case, but this was not done for Ahmedabad.

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2a Pattana (Fig. 17)

Here the equator and some almucantars were drawn carelessly first and had to be redrawn a second time. The inscription below the central hole:

bhā 5|20 *pattane*
pa.di. 33|48 *S 23|43*
S 13|8

"At Patan, [latitude] 23°43', noon equinoctial shadow (*bhā*) 5;20 [*aṅgulas*], longest day (*pa. di.*) 33 [*ghaṭīs*] and 48 [*palas*]; [or] 13 [hours] and 8 [minutes]."

2b **Śīrohī-nagara** (Fig. 17)

Here several circles had to be redrawn a second time because the first attempt was faulty. The inscription:

bhā 5|29 pa. *śīrohīnagare*
di. 33| 54 *S 24|30*
S 13|13

"At the city of Sirohi, [latitude] 24°30'; noon equinoctial shadow (*bhā*) 5;29 [*aṅgulas*]; longest day (*pa. di.*) 33 [*ghaṭīs*] and 54 [*palas*]; [or] 13 [hours] and 13 [minutes]."

3a. Āgarā-nagara (Fig. 18)

The inscription:

bhā 6|0 pa.di. *āgarā na[gare]*
34|16 S 13 *a 26|32*
|25

"At the city of Agra, [latitude] (*a = akṣāṃśa*) 26°32'; noon equinoctial shadow (*bhā*) 6;0 [*aṅgulas*]; longest day (*pa. di.*) 34 [*ghaṭīs*] and 16 [*palas*]; [or] 13 [hours] and 25 [minutes]."

3b. Yoginīpura (Fig. 18)

As in plate no. 1, here also after engraving the projections on face a, the astrolabe maker turned the plate around and, by mistake, turned the plate upside down by 180° and engraved the almucantars and hour lines. Unlike in plate 1, here

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he kept the wrong orientation and made one more hole in the upper half. The inscription:

bhā. 6|33 parama *Yoginīpure*

di. 34|35 *S 28|34*

S 13|41

"At Yoginīpura (i.e. Delhi), [latitude] 28°34'; noon equinoctial shadow (*bhā*) 6;33 [*aṅgulas*]; longest day (*parama di.*) 34 [*ghaṭīs*] and 35 [*palas*]; [or] 13 [hours] and 41 [minutes]."

Here the numerals are not uniform and follow different styles: 4 is engraved in two distinctly different ways, 6 several slightly different ways, 8 two distinct styles, 9 two distinct methods but in several slightly different styles. Also while numbering the hour lines, on some plates the numbers oriented towards the centre (1b, 2b, 3a, 3b) and on some others towards the rim (1a, 2b). The geographical data on the plates is tabulated in Table 3 below.

Table 3: Geographical Data in the Plates of Astrolabe 2.2

S. No	Town Name as engraved	Modern Name	Latitude	Modern coordinates	Equi-noctial Shadow	Longest day in *ghaṭīs*	Longest day in Hours
1a	Buhurānāpura	Burhanpur Madhya Pradesh	21;06°	21;17 N 76;16 E	4;38	33;14 (=13;17,36 *h*)	12;05 (=30;12,30 *gh*)
1b	Amadāvāda	Ahmedabad Gujarat	23;01°	23;03 N 72;40 E	5;06	33;36 (=13;26,24 *h*)	13;04 (=32;40 *gh*)
2a	Pattana	Patan Gujarat	23;43°	23;52 N 72;10 E	5;20	33;48 (=13;31,12 *h*)	13;08 (= 32;50 *gh*)
2b	Sirohīnagara	Sirohi Rajasthan	24;30°	24;53 N 72;54 E	5;29	33;54 (=13;33,36 *h*)	13;13 (=33;02,30 *gh*)
3a	Āgarānagara	Agra Uttar Pradesh	26;32°	27;10 N 78;05 E	6;0	34;16 (13;42,06 *h*)	13;25 (=33;32,30 *gh*)
3b	Yoginīpura	Delhi	28;34°	28;38 N 77;12 E	6;33	34;35 (=13;50 *h*)	13;41 (=34;12,30 *gh*)

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But strangely the values given in *ghaṭīs* and hours do not match. For 33 *ghaṭīs* 14 *palas* = $13^h17^m36^s$ and not 12^h5^m. On the other hand, 12 hours 5 minutes = 30 *ghaṭīs* 12 *palas* 30 *vipalas*. Thus all the six equations are wrong! Why this happened is difficult to say.

Now the question arises as to which of the values are correct, those in *ghaṭīs* or those in hours? When we compare these with similar values given in other sources, it is apparent that the values in *ghaṭīs* are the correct ones. Malayendu Sūri, in his commentary (*ca.* 1382) on Mahendra Sūri's *Yantrarāja* (1370) gives the following values to some of the towns mentioned above. Aṇahillapattana: latitude (*akṣāṃśa*) 24°, longest day (*paradi[na]*) 33;48 *ghaṭīs*; noon equinoctial shadow (*viṣuvatī*) 5;20. Dillī: latitude 28;39°, longest day 34;34 *ghaṭīs*; noon equinoctial shadow 6;33.[64] Therefore, the astrolabe maker (or the one who designed it) made grave errors in converting *ghaṭīs* and *palas* into hours and minutes.

In the seventh column of the table, below the *ghaṭī* value as engraved on the plate, we have given the exact equivalent in hours, minutes, and seconds in parenthesis; likewise in the eighth column, below the hour value as engraved on the plate, we have given the exact equivalent in *ghaṭīs*, *palas* and *vipalas* in parenthesis.

The back of the astrolabe (Fig. 13) is divided into four quadrants by a vertical and a horizontal diameter. The rim of the two upper quadrants carries two concentric circular scales. The inner scale in graduated in single degrees. In the outer scale, units of 5° are marked and numbered from 5 to 90. The numbering starts respectively from the east and west points and reaches the south point at the top.

The upper left quadrant has 12 horizontal parallel lines, almost corresponding to the divisions of 5° in the rim. These would provide the sines of the angles measured on the circular scale. The upper right quadrant has 5 concentric quarter circles, producing 6 annuli, each one for two opposite signs of the zodiac. But it was not filled in, nor was it labelled. In the lower half, shadow squares are drawn, on the left for a gnomon of 12 units, and on the right for a gnomon of 7 units, but not labelled. Within the shadow squares, there is a grid of 16 x 4 cells which is not filled in. It is unfortunate that the engravings on the back have not been completed, for unknown reasons.

Pivoted to the centre at the back is a plain alidade (*vedhapaṭṭī*) with two sights (Fig. 11). No graduations are engraved on the alidade. It has a length of 114 mm,

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64 Mahendra Sūri, *Yantrarāja with the commentary of Malayendu Sūri*, op. cit., pp. 21, 23.

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a width of 20 mm and a thickness of 3 mm. Its terminals are ornate and shaped like the ends of the slit in the *Dhruvabhrama-yantra* described above. The alidade and also the three discs and the rete in the front are held in position by a 24 mm long pin with a broad head shaped like a stylized lotus. The pin passes through the central hole successively in the alidade, in the mater, in the three latitude plates and in the rete and juts out in the front, terminating into the shape of a stylized lotus bud. The portion jutting out in front has a hole just above the surface of the rete. A wedge is pushed through this hole so that all the parts stay firmly in position. One end of the wedge is shaped like a horse's head for better grip. In Islamic astrolabes, it is customary to shape the end of the wedge in the form of a horse's head. Therefore the wedge is called *fars* (horse) in Persian. There is no astronomical or other significance to this shape. It just facilitates a better grip. Some astrolabe maker must have shaped the wedge in the form of the horse's head out of mere whim and the practice caught on. In the present astrolabe, there is a hole in the horse's head, though which a ring passes and a small chain is attached to the ring. Probably the chain connected the wedge to the ring on the top, in order to prevent the misplacement or loss of the wedge, which often happens.

In this astrolabe also, the engraved lines, legends and numerals are filled with a white substance so that these stand out visually.

Acknowledgements

I am highly obliged to Shri Yogesh B. Oza, Principal, Sanskrit Mahavidyalaya, and to Professor M. L. Wadekar, Offg. Director, Oriental Institute, for their kind permission to study the instruments preserved in their respective institutions. To Professor Wadekar I owe further thanks for inviting me to deliver the Dr U. P. Shah Memorial Lectures. Dr S. Y. Wakankar, Dr Sharmila Bagchi and Dr Milind S. Joshi offered me various kinds of assistance at the Oriental Institute. Special thanks are due to Dr Sweta Prajapati for organizing my visit and lectures most efficiently. Ms Purva Bhatt of the Department of Biochemistry helped me with photography. My niece, Dr C. Ratna Prabha and her family made my stay at Vadodara comfortable and pleasant. I am happy to record my warmest thanks to all of them.

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ILLUSTRATIONS

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3. Sine Quadrant 2 (engraved on an Oblong Plate).
4. *Dhruvabhrama-yantra.*
5. *Gola-yantra.*
6. *Nalaka-yantra.*
7. *Yantrarāja* 1, Front View.
8. *Yantrarāja* 1, Star Map.
9. *Yantrarāja* 1, Main Body, Front.
10. *Yantrarāja* 1, Main Body, Back.
11. *Yantrarāja* 2, all the Components.
12. *Yantrarāja* 2, Main Body, Front.
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16. *Yantrarāja* 2, Plate 1, obverse: Burhanpur; reverse: Ahmedabad.
17. *Yantrarāja* 2, Plate 2, obverse: Patan; reverse: Sirohi.
18. *Yantrarāja* 2, Plate 3, obverse: Agra; reverse: Yoginīpura (=Delhi).
19. *Yantrarāja* 2, Inscription on the circular Edge of the Mater.

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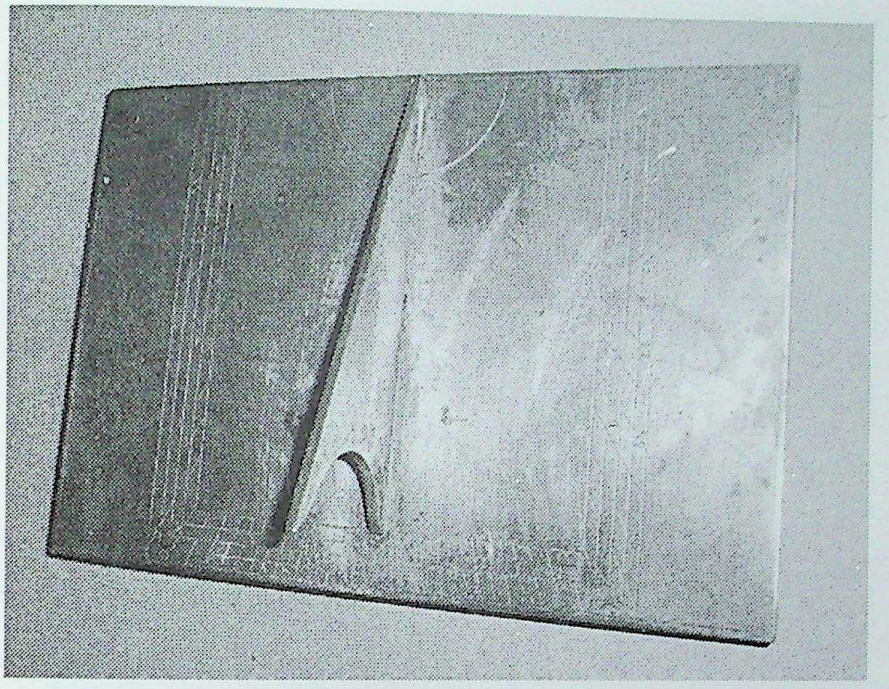

Fig. 1: *Palabhā-yantra*

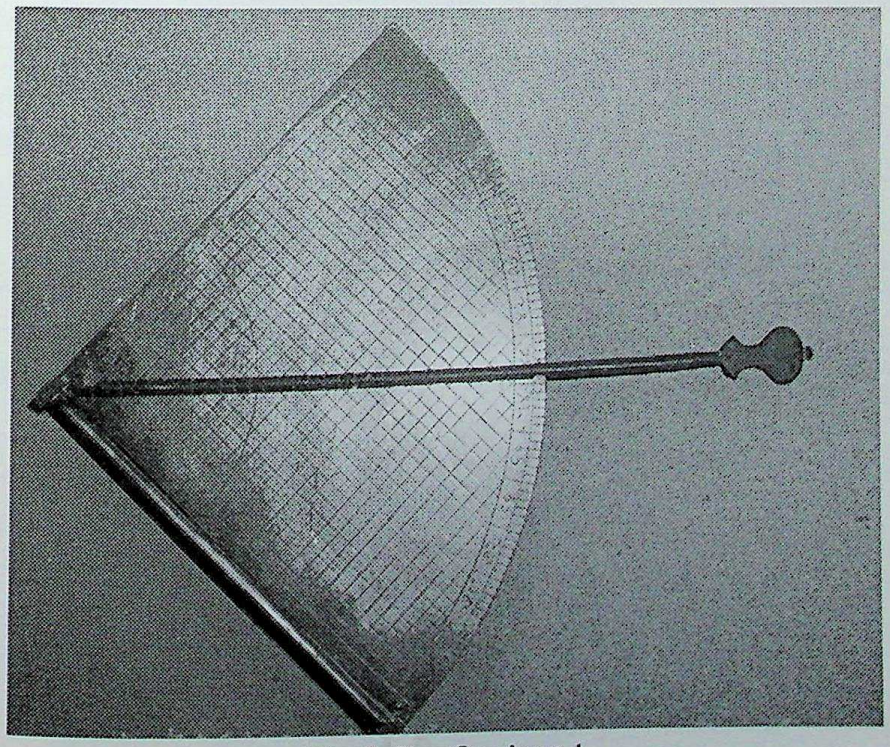

Fig. 2: Sine Quadrant 1

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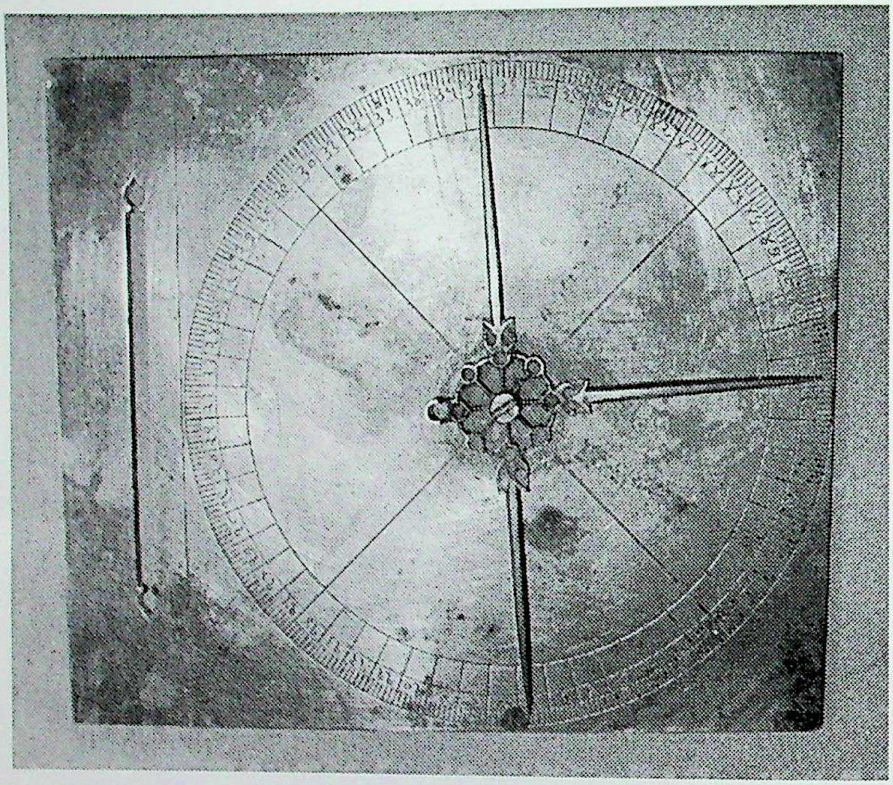

Fig. 4. *Dhruvabhrama-yantra*

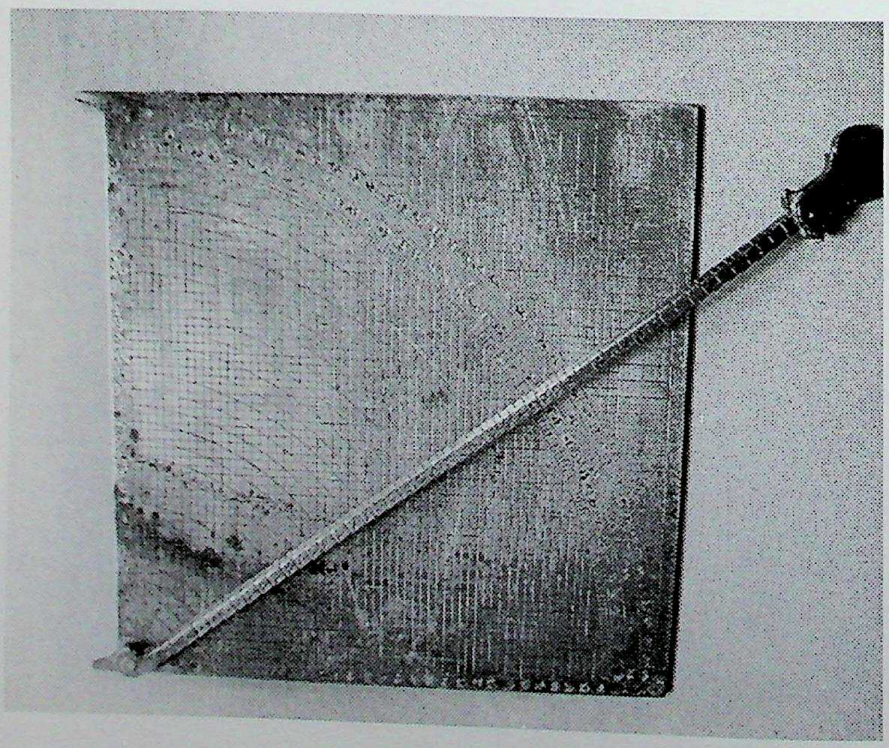

Fig.3. Sine Quadrant 2

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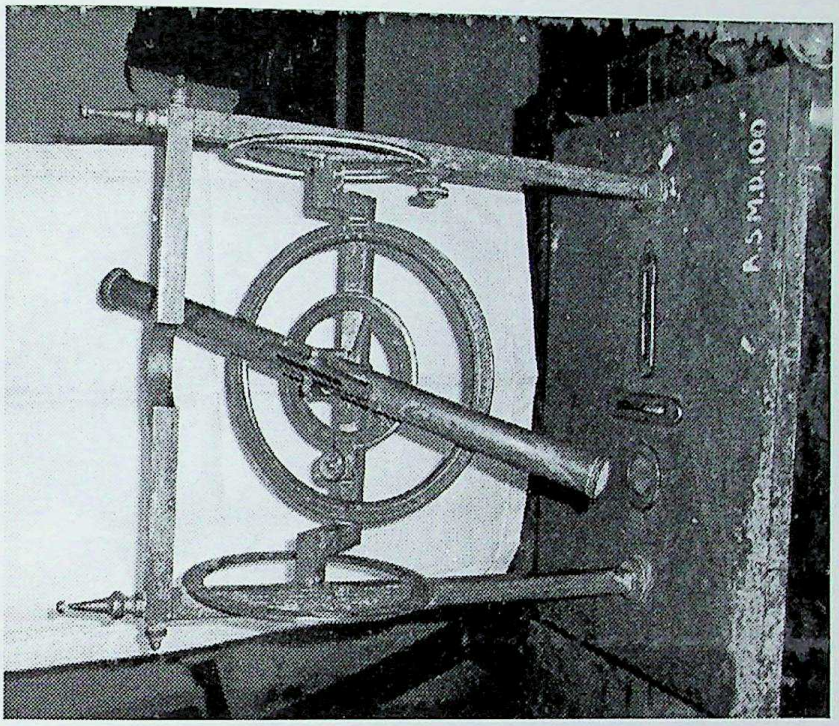

Fig. 6. *Nalaka-yantra*

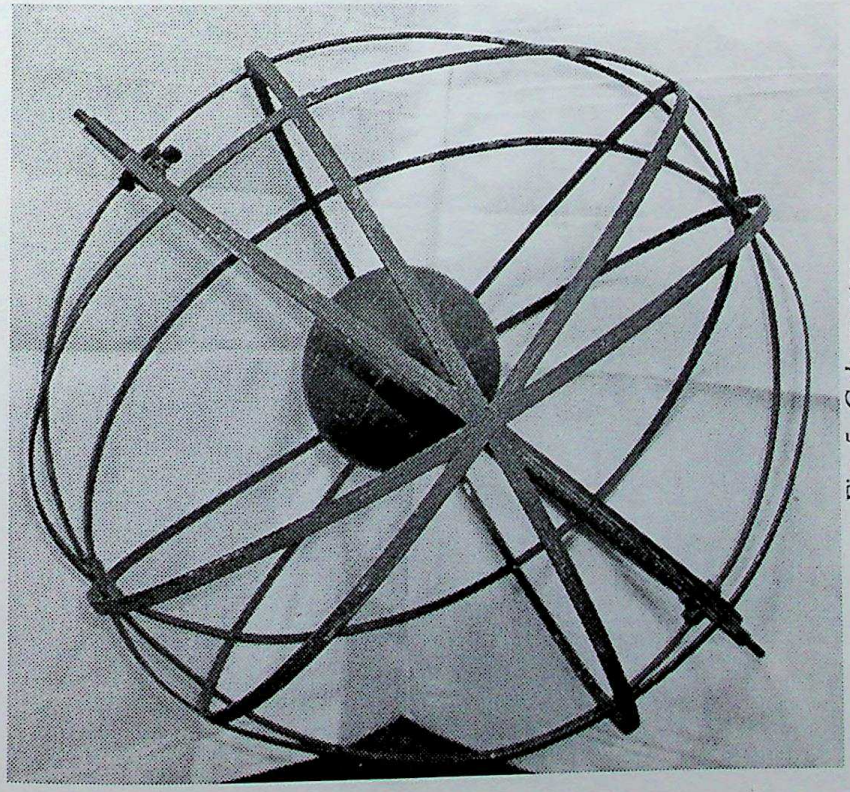

Fig. 5. *Gola-yantra*

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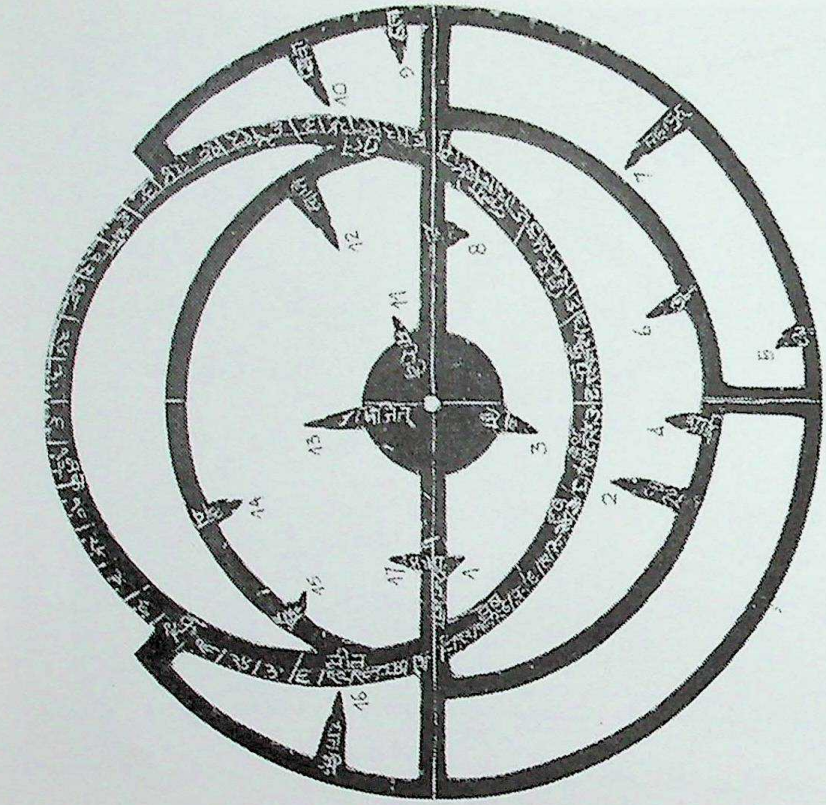

Fig. 8. *Yantrarāja* 1, Star Map. The serial numbers have been added to the star pointers.

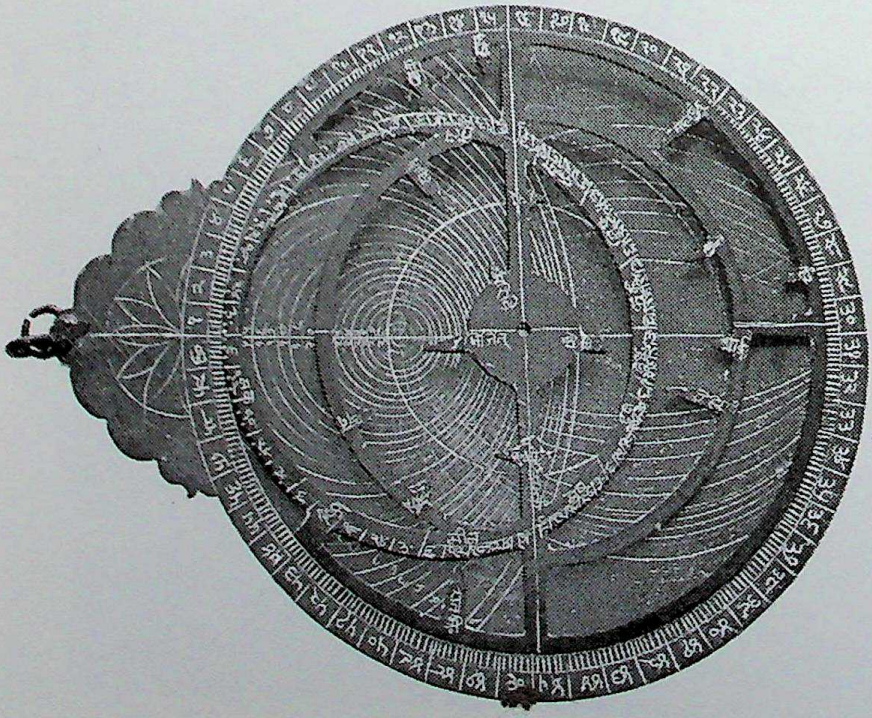

Fig. 7. *Yantrarāja* 1, Front View.

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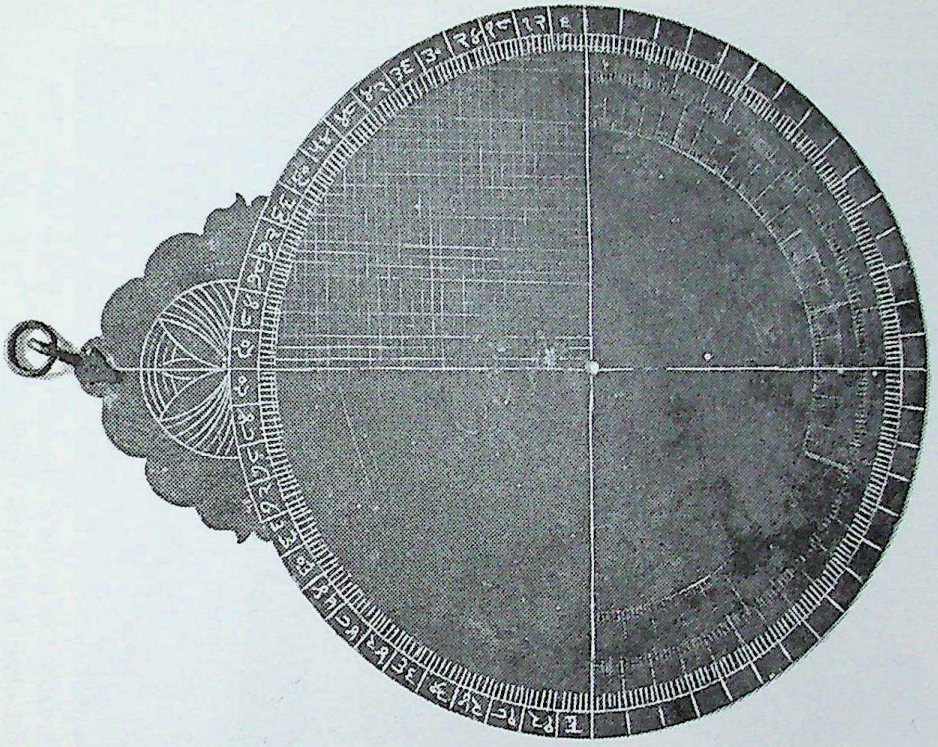

Fig. 10. *Yantrarāja* 1, Main Body, Back.

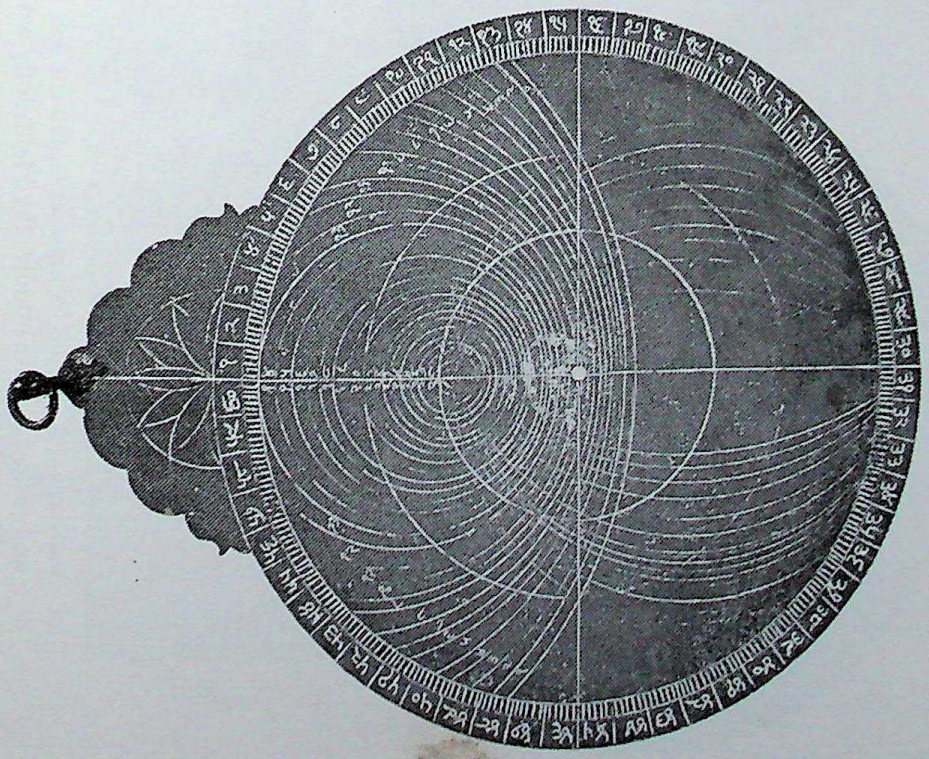

Fig. 9. *Yantrarāja* 1, Main Body, Front.

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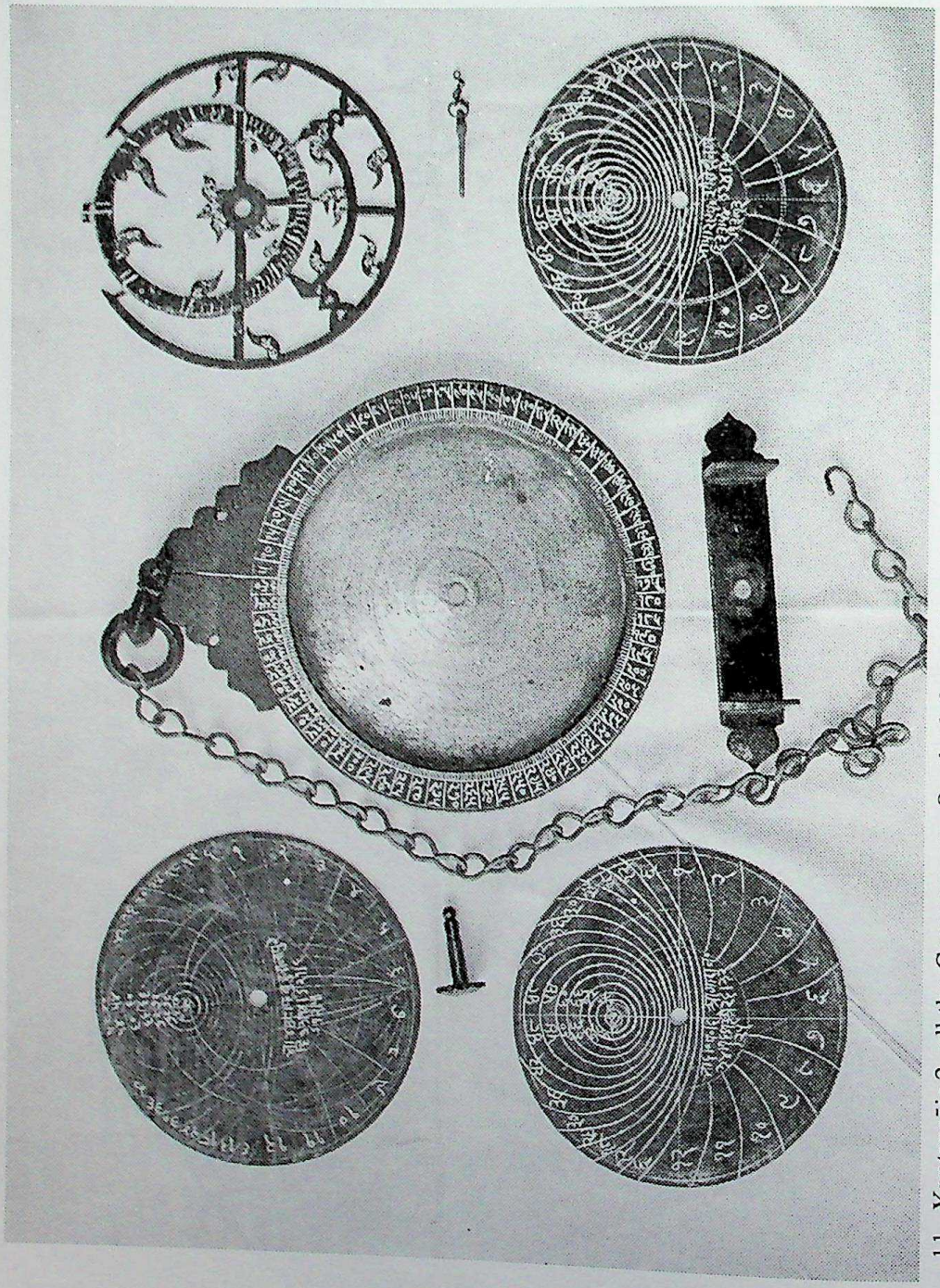

11. *Yantrarāja* 2, all the Components. On the left are, from top to the bottom, Plate 1, broad-headed Pin and plate 2. In the middle, the Main Body with the chain and below it the Alidade. On the right, the Star Map, horse-shaped Wedge and Plate 2.

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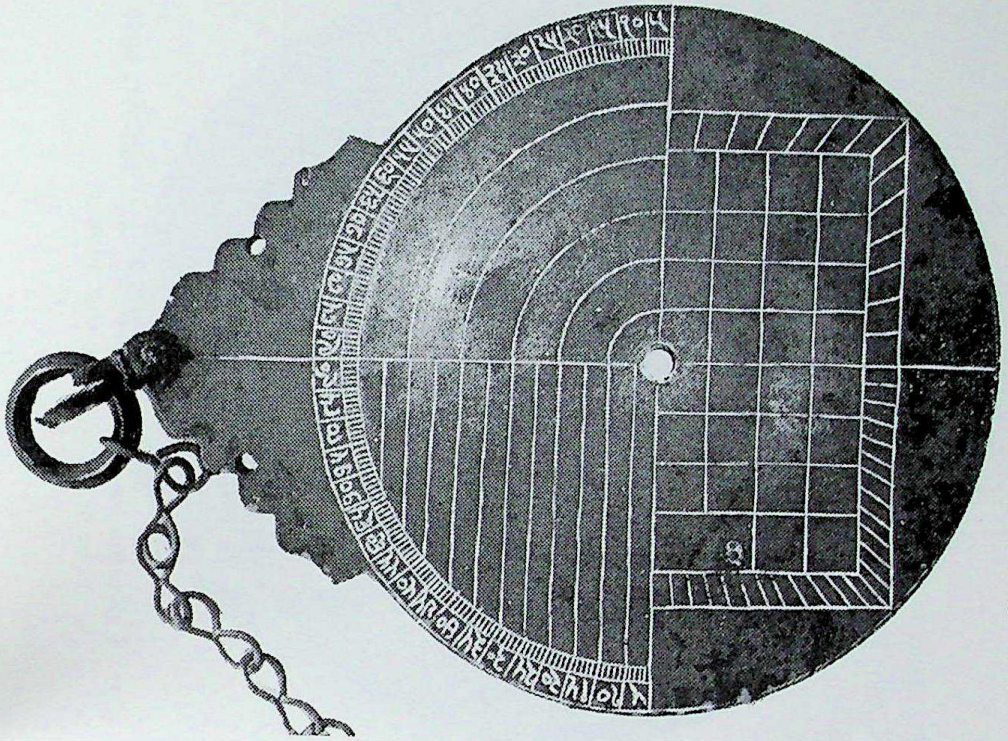

Fig. 13. *Yantrarāja* 2, Main Body, Back.

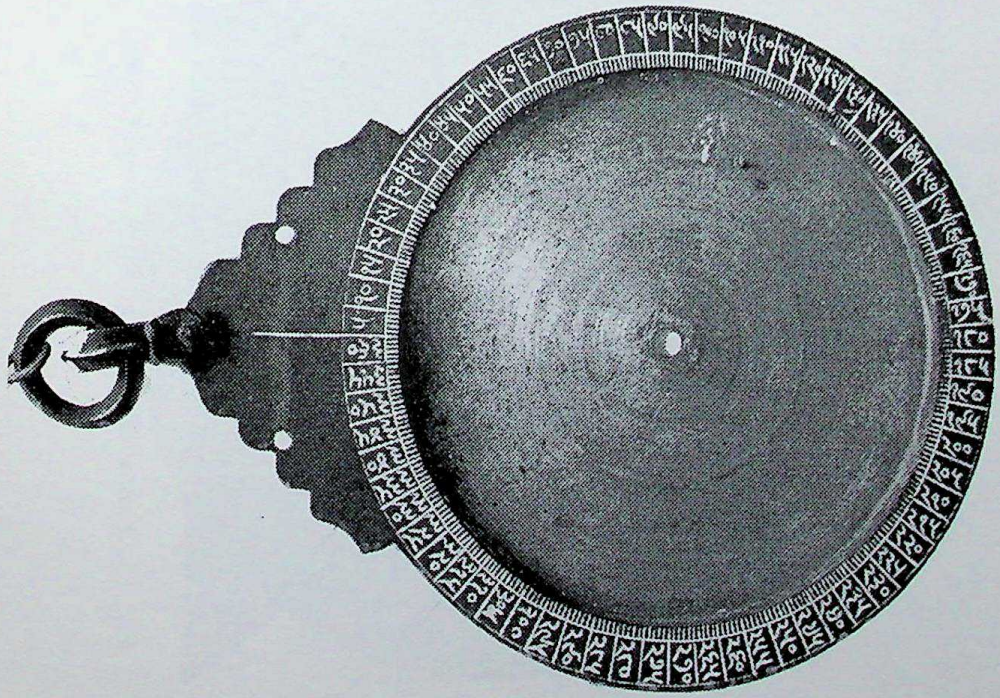

Fig. 12. *Yantrarāja* 2, Main Body, Front.

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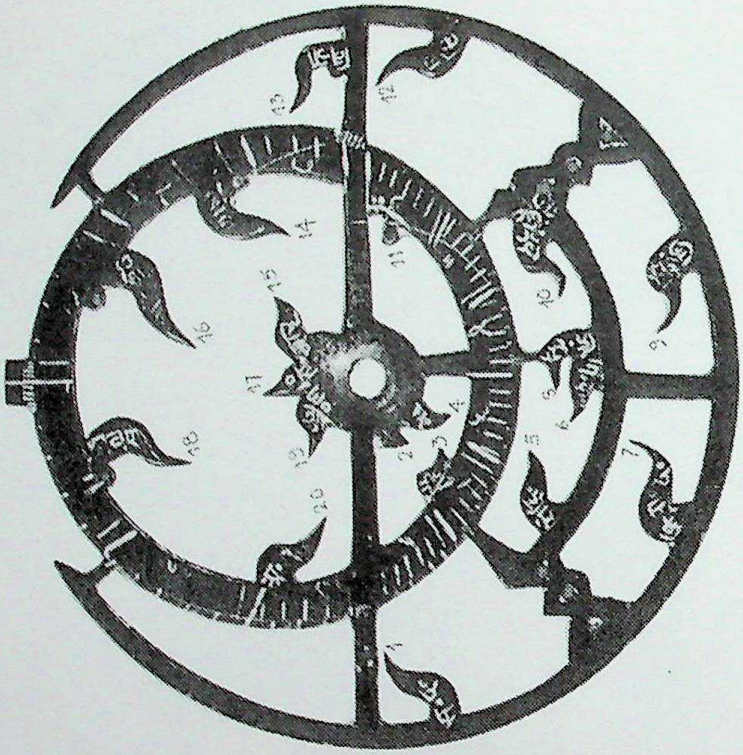

Fig. 15. *Yantrarāja* 2, Star Map. The serial numbers have been added to the star pointers.

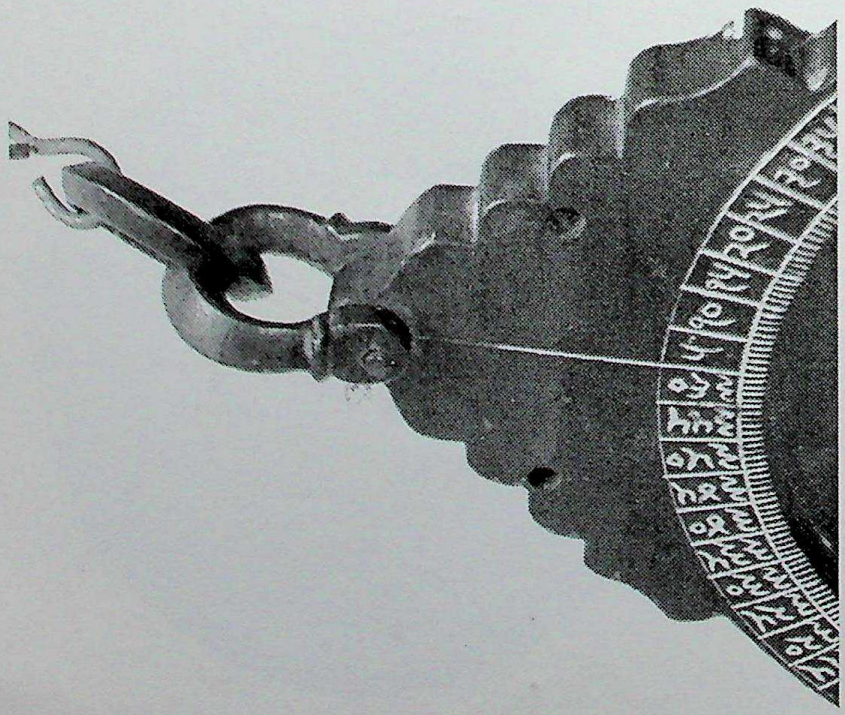

Fig. 14. *Yantrarāja* 2, Ring, Shackle and Crown.

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Fig. 16. *Yantrarāja* 2, Plate 1, obverse: Burhanpur; reverse Ahmedabad. Note that on the reverse side the engraving is done upside down.

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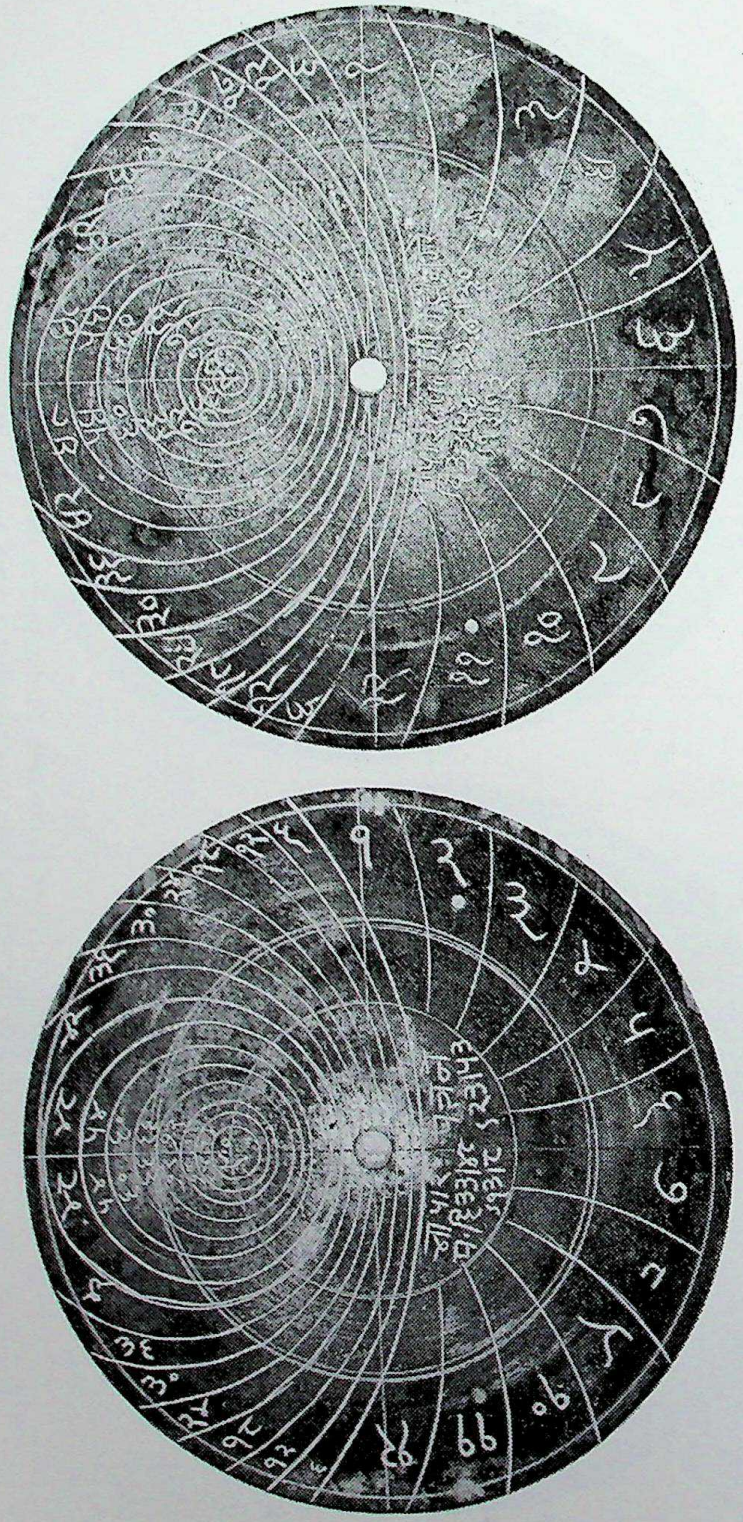

Fig. 17. *Yantrarāja* 2, Plate 2, obverse: Patan; reverse: Sirohi.

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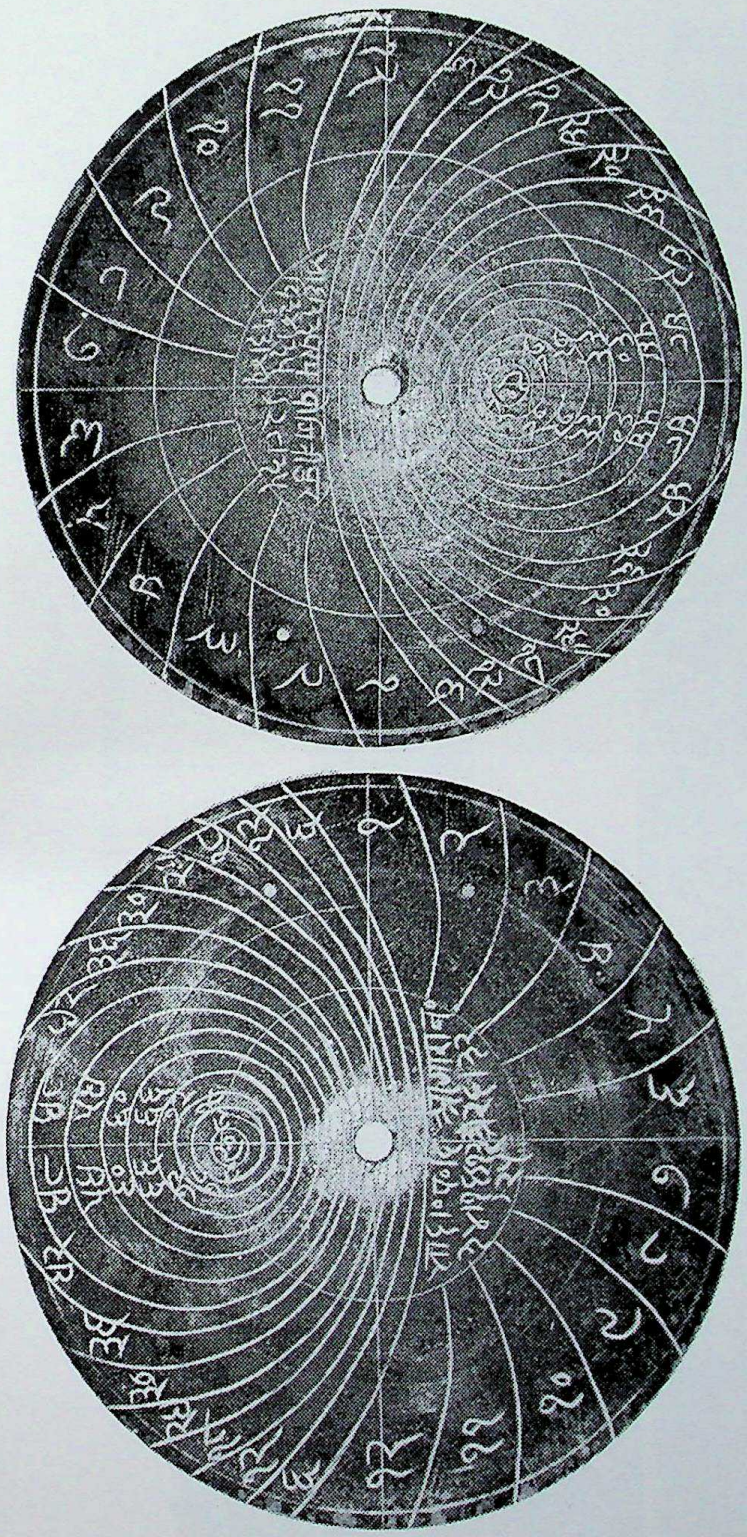

Fig. 18. *Yantrarāja* 2, Plate 3, obverse: Agra; reverse: Yoginīpura (=Delhi)
Note that on the reverse side the engraving is done upside down.

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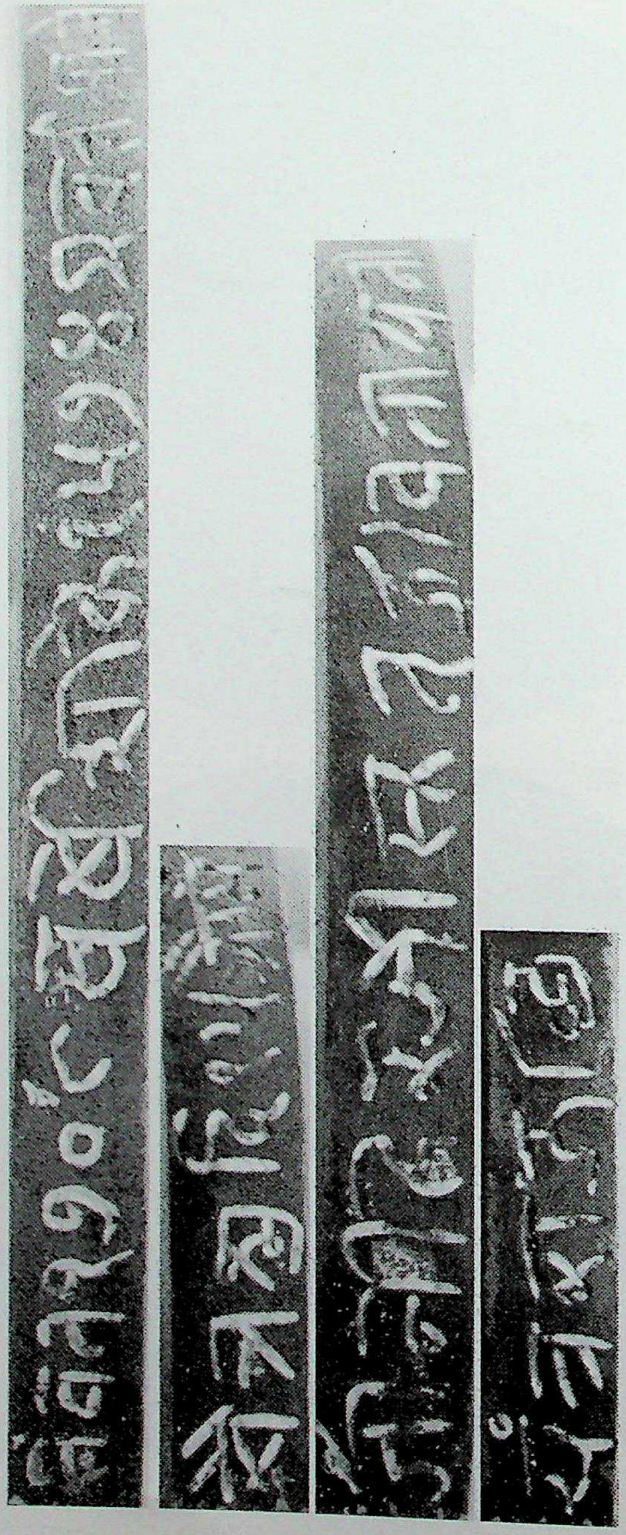

Fig. 19. Inscription on the Circular Edge of the Main Body.

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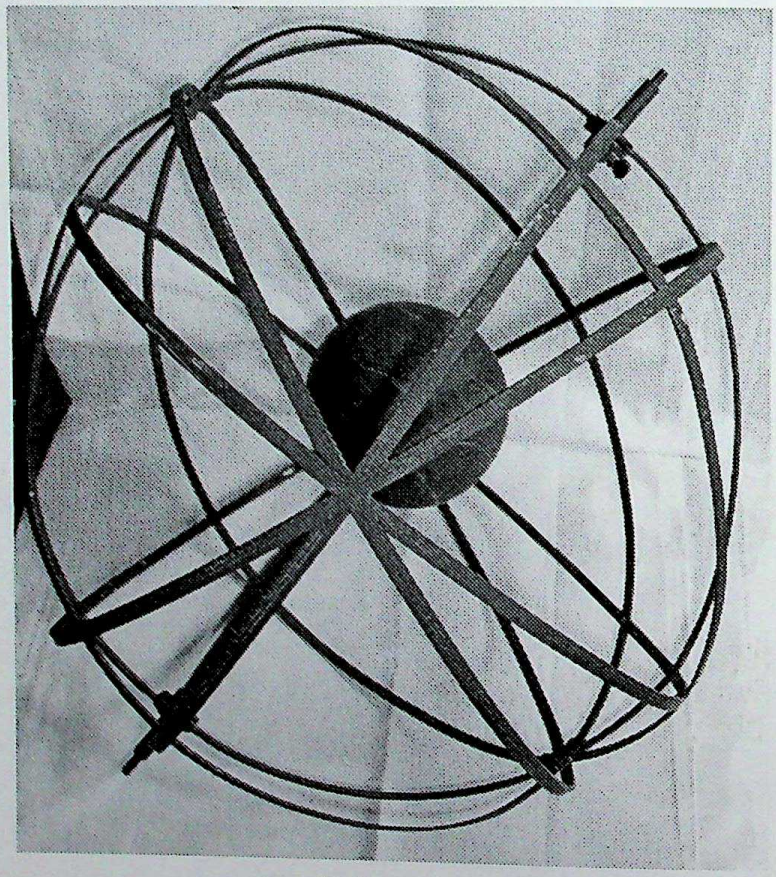

Golayantra
(Baroda Sanskrit Mahavidyalaya)
[Refer S.R. Sarma's Monograph, p.37]

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